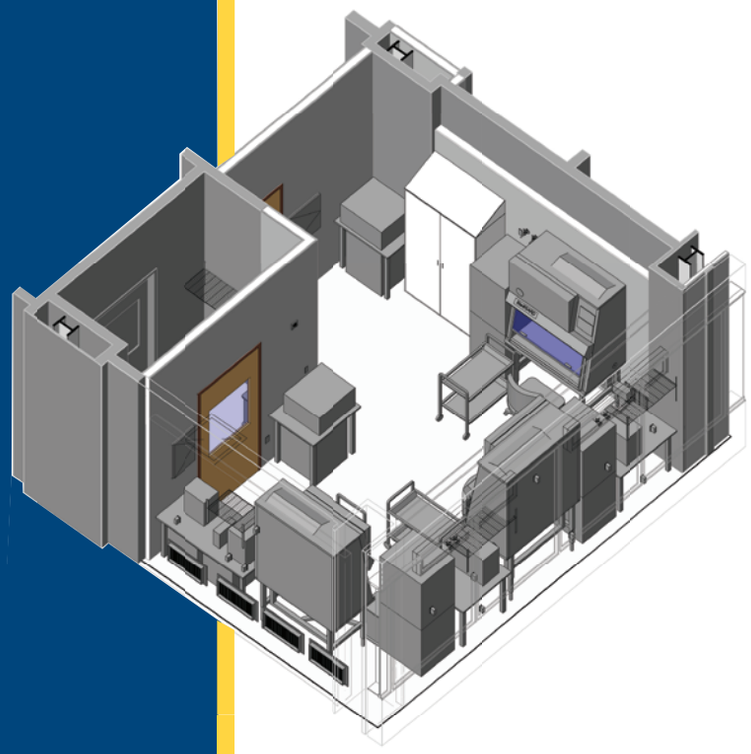
# LMSXChange

DATA AND CONFIGURATION MANAGER



## Operators Manual

LIGHTHOUSE
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Any difficulties encountered when running other programs in conjunction with LMS XChange will not be supported by Lighthouse Worldwide Solutions.

The information contained herein is subject to change without notice. Lighthouse Worldwide Solutions is not responsible for any damages arising out of your use of the LMS XChange program.



LWS Part Number: 248083491-1 R6

# About This Manual

This manual describes how to operate the LMS XChange Data and Configuration Manager Software program.

## Audience

The LMS XChange Data and Configuration Manager software program was written to download data from Apex, Solair, Handheld, Vertex, and connected environmental sensors. LMS XChange can export downloaded data to Excel (.xlsx), CSV (.csv), and PDF (.pdf) file formats. In addition, LMS XChange has the ability to manage configurations for ApexZ instruments and connected ApexR instruments (this includes ApexR and ApexRXP units), and manage locations for data imported from Apex Portable, Solair Portable, Vertex, and Handheld instruments.

## Additional Help

For more information about LMS XChange, contact Technical Support at Lighthouse Worldwide Solutions.

(800) 945-5905 Sales and Service
(541) 770-5905 Outside of USA

techsupport@golighthouse.com www.golighthouse.com

## Note and Warning

**Note:** A note appears in the sidebar to give extra information regarding a feature or suggestion.

**Warning:** A warning message appears that doing something incorrectly could result in personal injury, damage to the instrument or loss of data.

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# Table of Contents

# Overview

## LMS XChange

LMS XChange allows users to import data collected on LWS instruments using the approved communication methods. LMS XChange displays imported data in a table that the user can view and save to an Excel (.xlsx), CSV (.csv), or PDF (.pdf) file format.


**ApexZ**

**Solair Portable**

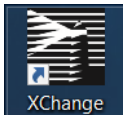

**Apex Portable**


**ApexR**

**Handheld**


**Vertex50**

Additionally, LMS XChange can manage configurations on ApexZ particle counters, configurations on connected ApexR instruments, and manage location lists for data imported from Apex Portable, Solair Portable, and Handheld instruments.




**Desktop Icon**


**LMS XChange Splash Screen**

## Basic Concepts and Features

**Instrument:** Instrument refers to a Lighthouse particle counter. LMS XChange supports importing particle count and environmental data from ApexZ, ApexR, ApexP, Solair, Vertex, and Handheld instruments.

**Sensor:** A sensor generally refers to a connected environmental sensor which is reporting data through a connected instrument.

**Group:** ApexZ instruments allow Locations to be associated with a Group Name. LMS XChange supports creating, viewing and updating Location and Group Names, and associating Locations with Group Names.

**Location:** Location Names are assigned to represent physical areas where samples are taken. In LMS XChange, Location Names are saved with an instrument's configuration and can be managed, by Admin users, through LMS XChange.

**Data Type:** Describes the type of data collected. For particle counters, this is the micron size and quantity of the particle; for environmental sensors, this is the type of analog sensor used i.e. air velocity, temperature, etc.

**Channel Size:** This is the micron size of the particle data recorded. All data records imported into LMS XChange contain the original, raw, data counts recorded per channel size.

**Class:** Cleanrooms are designated certain **"**class**"** levels based on the level of cleanliness required for the industry or Grade level.

**Data Import**
LMS XChange allows users to import data from connected instruments, from LSDX, LSD, and LSRX data files, as well as import databases from LMS Express.

**Data Table**
Data imported and saved in LMS XChange is displayed in a table format. Users can select or de-select the columns shown on the display. Data displayed in the Data Table can be filtered by sample date range, models, instruments, groups, locations, presets, sample plans, certifications, users, tags, alerts, and faults.

**Data Export**
Data displayed in Data Table can be exported to Microsoft Excel (*.xlsx), CSV (.csv), and Adobe Acrobat Reader PDF (*.pdf) files.

**Database Import**
Users are able to import databases from LMS Express that are in the .db3 file format.

**Require Logins**

LMS XChange can be configured to require all users to log in.

**Auto Log out**

LMS XChange can be configured to automatically log itself out for any user computer idle for more than XX minutes. Administrators can configure the XX amount of time before a user is Auto-logged out.

**Active Directory**

LMS XChange supports Active Directory.

**21 CFR Part 11 Compliant**

LMS XChange can be set up to be 21 CFR Part 11 compliant. LMS XChange writes all logins, logouts, imports, downloads, and configuration changes to its Audit Log. Data that has been imported into LMS XChange cannot be deleted. In addition LMS XChange supports password aging, idle time logout, auto-lockout after 3 failed login attempts, and password complexity requirement.

**Audit Log**

LMS XChange Administrator and Power Users can view the LMS XChange Audit Log to verify and confirm what has occurred in the system. LMS XChange records all user logins, logouts, data imported or downloads, changes to ApexZ configurations, as well as changes to LMS XChange settings in its Audit Log. Users can add comments to Audit Log entries, and a new entry is added to record each comment update. Audit Logs can be exported to Excel, CSV, and PDF files.

**ApexZ Configuration Management**

LMS XChange allows Administrator level users to manage ApexZ instrument configurations. Administrator users can, create new ApexZ configurations, view and/or save configurations. In addition, Administrator level users can access and save configurations from USB drives, as well as edit saved configurations from connected ApexZ instruments.

**ApexR Configuration Management**

LMS XChange allows users to manage customer-level configuration for connected ApexR instruments. Users can update the Settings for Date, Sample, Protocol, Channels, Display (affects units with the optional screen), and Smart Brackets. The Report function also allows users to generate Customer Reports for viewing on-screen and enables export of those Reports to a variety of file types.

**Application Settings**

System parameters that can be set include language, importing audit trails with data and importing compliance reports with data; allowing data tag update on re-imported data, preferred temp units and data table page size.

**User Settings**

LMS XChange includes three default permission levels for user accounts: Operator, Power User, and Administrator. Additional User Settings include enabling and disabling users, Active Directory, Secure Active Directory, auto logout time, maximum password ageing, lock user after 3 failed attempts, and password complexity requirements.

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# Chapter 1 Getting Started

## Installation

**Note:** To view this manual on-line, Adobe Acrobat Reader must be installed.

**Note:** After LMS XChange has been installed it will be available to a Windows General User.

### LMS XChange Minimum PC Requirements

- A computer with a dual core 1 GHz or higher processor
- Windows 8.1, 10 or 11 (32 or 64 bit) operating system
- 1 GHz or faster 32-bit (x32) or 64-bit (x64) processor
- 1 GB (32-bit Windows) or 2 GB (64-bit Windows) of memory or more available
- 1 GB of hard disk space
- 256-color monitor with an 1366x768 resolution
- Keyboard and mouse

### Install LMS XChange

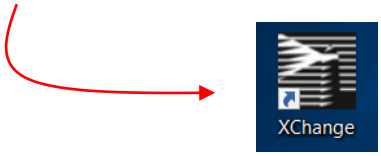
LMS XChange can be installed two ways:

(1) Insert the INSTALL USB Drive into an available USB port. The installation program should start automatically. If it does not, run the install program located in the LMS XChange root directory on the USB Drive.

(2) Access https://www.golighthouse.com/en/software-firmware-downloads and download the software. Run the .msi file to install.

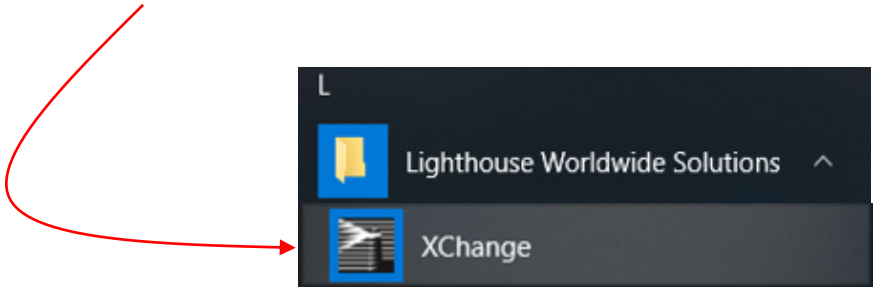
## Startup

Once LMS XChange has been installed, launch the software by double clicking the desktop icon labeled LMS XChange.




**LMS XChange Desktop Icon**

Alternately, LMS XChange can be started by opening the Windows Start Menu, Lighthouse Worldwide Solutions folder and select LMS XChange.




**Start Menu access to LMS Xchange**

**Splash Screen**

Upon starting LMS XChange, the splash screen displays.

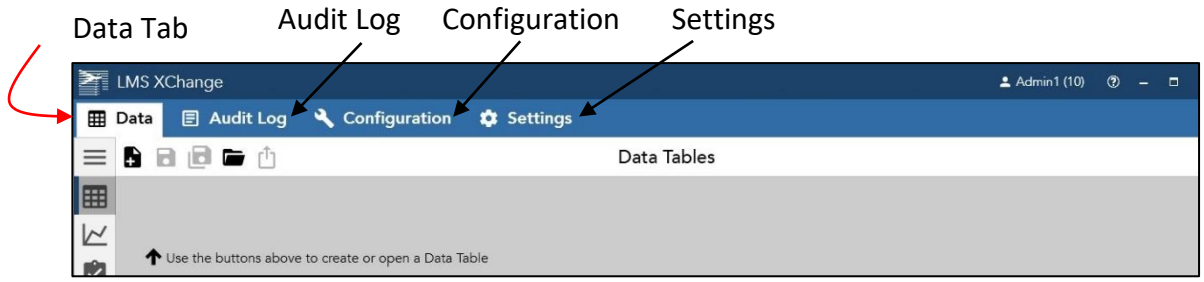

**LMS XChange Splash Screen**

# Chapter 2 LMS XChange User Interface

When LMS XChange software begins it will display the Data Table Dashboard Tab.

## Dashboard Tabs

The tabs across the top of the View Area are called the Dashboard Tabs. LMS XChange has four Dashboard tabs:




**Dashboard Tabs: Data, Audit Log, Configuration and Settings**

### User Permission Levels

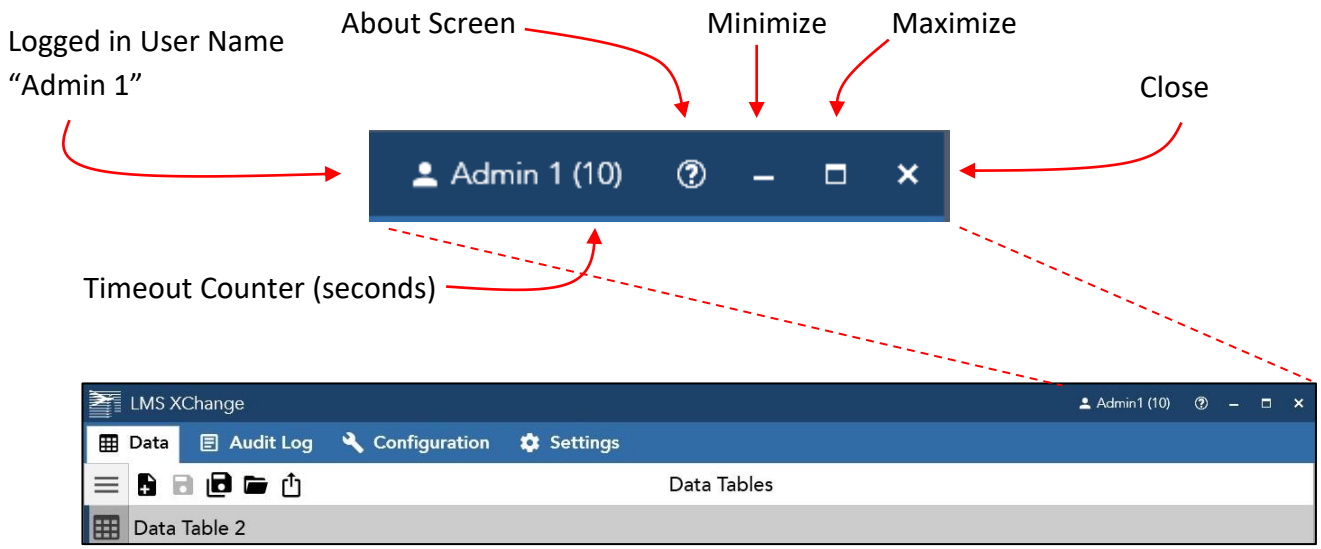
Access to dashboard tabs vary by the logged in user's permissions level. Administrator and Power User level users can access the Data, Audit Log, Configuration and Settings tabs. Operator users will only see the Data table tab.

| User Permission Level | Data Table | Audit Log | Configuration | Settings |
|---|---|---|---|---|
| Administrator | ✓ | ✓ | ✓ | ✓ |
| Power User | ✓ | ✓ | ✓ | ✓ |
| Operator | ✓ | NA | NA | NA |

**User Permission Level - Dashboard Accessibility Chart**

### Logged in User

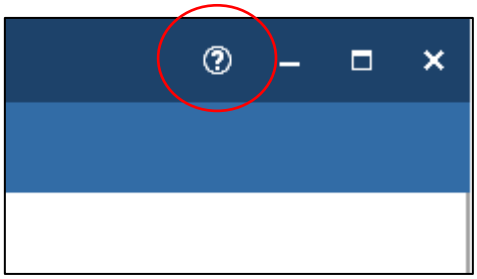
If users are enabled, the name of the currently logged in user will be displayed in the upper right corner of the LMS XChange application title bar, next to the application's minimize, maximize, full screen, and close buttons.




**Data Table: View & Export Data Screen with logged in User “Admin 1”**

## About Window

Clicking the About button (“?”) on the application’s title bar displays the following LMS XChange About window. The user can click the “View Manual” button to open a copy of the Operator’s Manual, or click “View 3rd Party Licenses” to view the software licenses of 3rd party software used in LMS XChange.




**About Window**

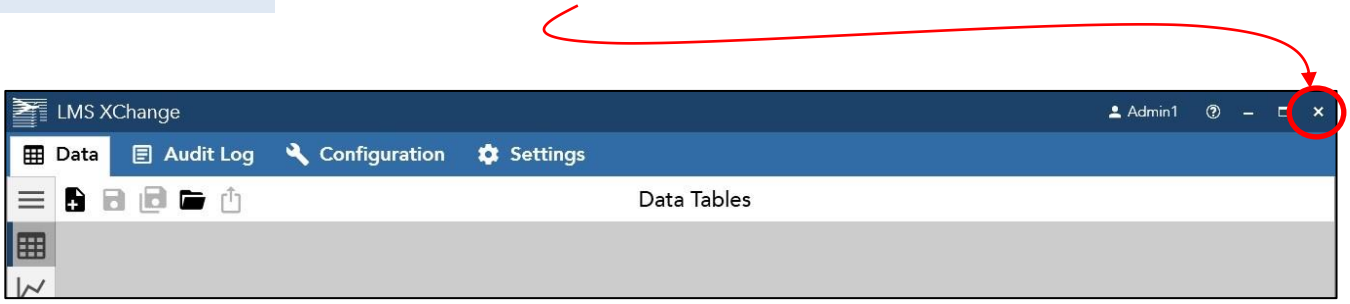
## Shutdown

### LMS XChange Shutdown

**Note:** If Users are enabled and the system is inactive for more than the auto logout duration, the user will be logged out automatically.

To shut down LMS XChange

- Press the **Alt** button and the **F4** button at the same time.
  OR
- Click on the **"x"** in the program's upper right corner of the screen.

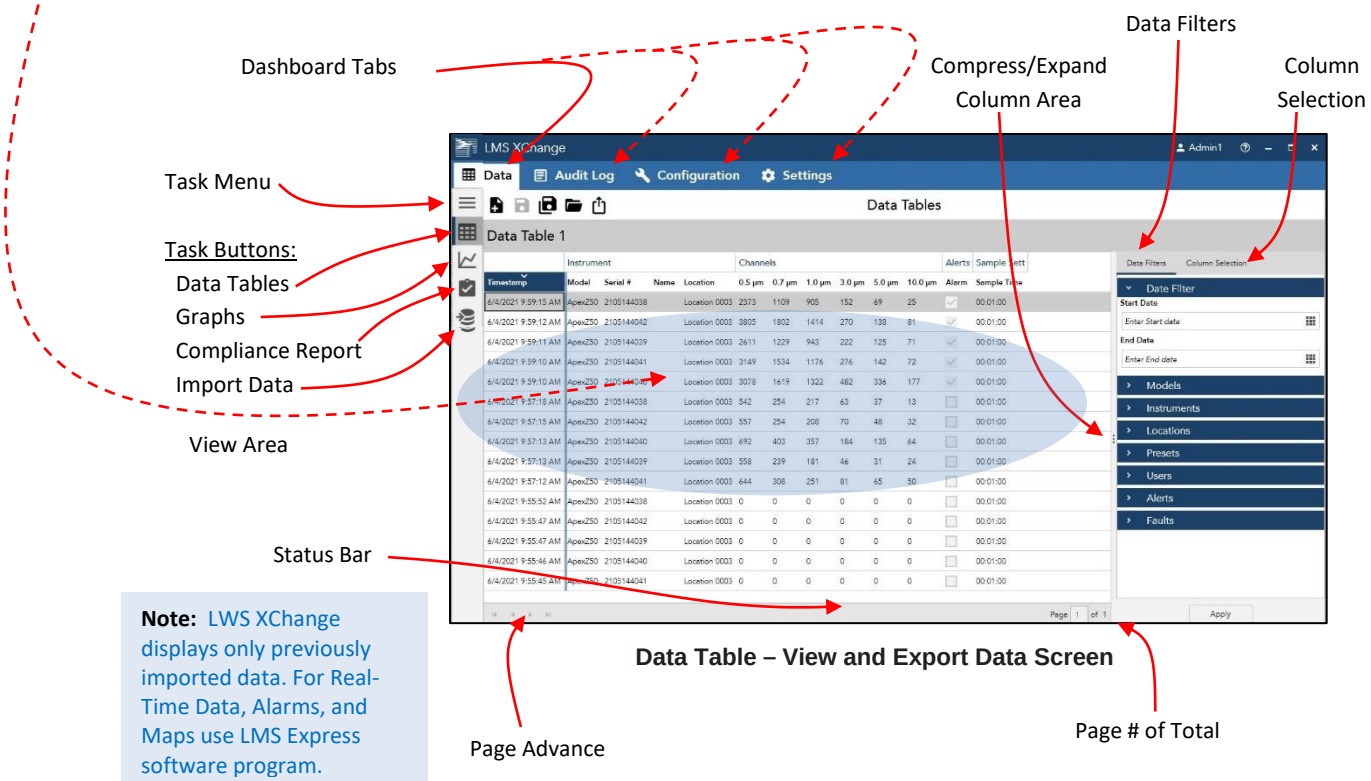



**Data Table: LMS XChange Shutdown**

# Chapter 3 Data Table

## Data Table View Area

The View Area on the View and Export Data screen displays downloaded data in columns and rows. In the example below the Data tab and the Data Table button have been selected and the Data Table – View and Export Data screen is displayed.




**Data Table – View and Export Data Screen**

**Note:** LWS XChange displays only previously imported data. For Real-Time Data, Alarms, and Maps use LMS Express software program.

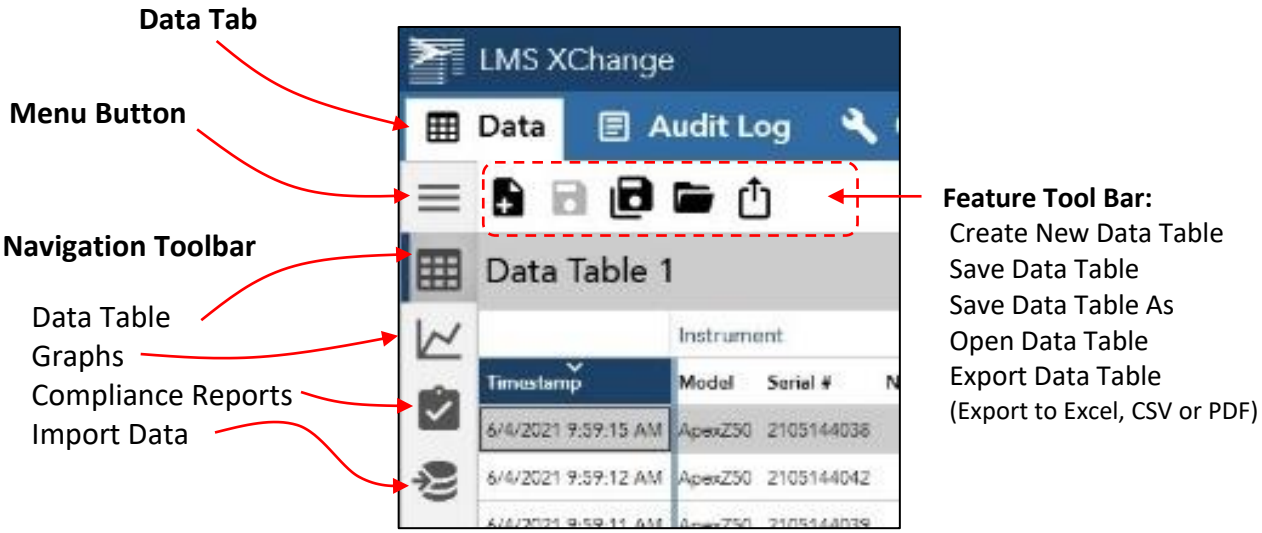
## Status Bar

On the bottom right of the status bar LMS XChange displays the current page # of Total page numbers of data displayed. On the bottom left of the status bar LMS XChange displays page advance buttons for forward, backward, first and last page displayed.

## Data Table: Navigation and Feature Toolbars

Once a user has clicked on the Data tab, the Navigation Tool bar will appear with selectable icons.

For example, when the user clicks on the Dashboard's Data tab, the Navigation toolbar and Feature toolbar update as follows.




**Data Table Screen Navigation and Feature toolbars**

## User Permission Levels

Access to dashboard tabs vary by the logged in user's permissions level. Administrator and Power User level users can access the Data, Audit Log, Configuration and Settings tabs. Operator users will only see the Data table tab.

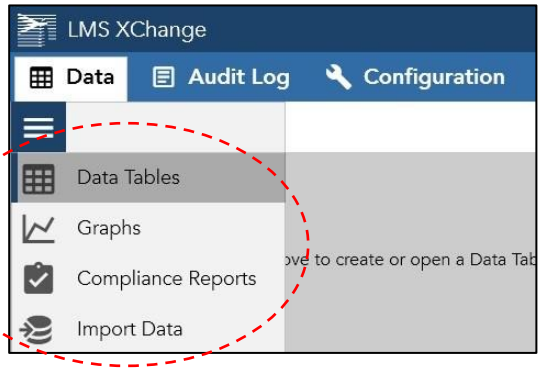
| User Permission Level | Data Table | Audit Log | Configuration | Settings |
|---|---|---|---|---|
| Administrator | ✓ | ✓ | ✓ | ✓ |
| Power User | ✓ | ✓ | ✓ | ✓ |
| Operator | ✓ | NA | NA | NA |

**User Permission Level - Dashboard Accessibility Chart**

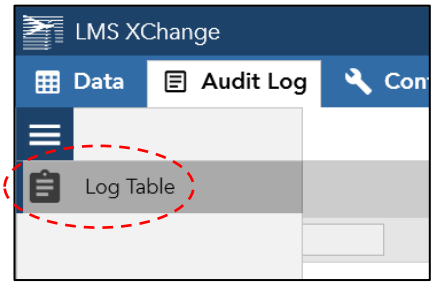
## Menu Buttons

When the user clicks on the menu button the Navigation Tool Bar will extend and display the full menu names.

**Data Tab Menu**

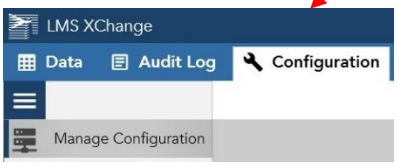



**Audit Log Tab Menu**

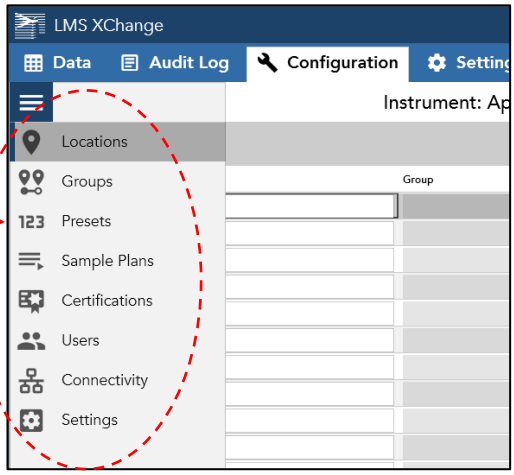



**Configuration Tab Menu**

No config file being edited

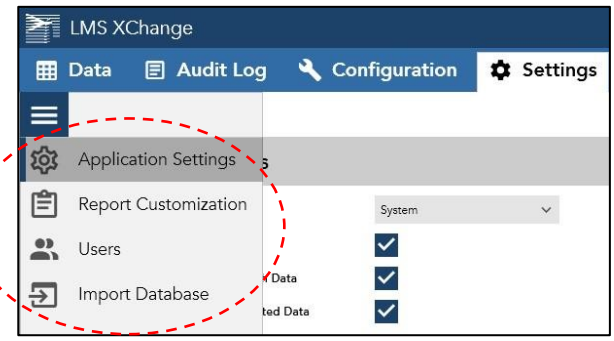



Config file being edited




**Settings Tab Menu**

The Users screen is only shown when no Users are logged in or an Administrator account is signed in



## Data View Area

Imported data can be displayed in the Data View area of the Data Table. The first time LMS XChange is run, no Data Table will be displayed.

- Click on the Create New Data Table button to bring up the naming dialog box. Give the Table a name, press Create, and the Table will display with default filters applied.

**Create New Data Table**


Once a Table is created, it will display data using the default Data Filters and Column Selections. Users can use the Data Filters menu on the right side to determine which columns of data are displayed in the Data View Area. Users can use the Column Selection menu to determine which data records appear on the Data View Area. Buttons at the bottom of the Data View area allow users to click through pages of the data, as well as see the page number of the data they are currently viewing.

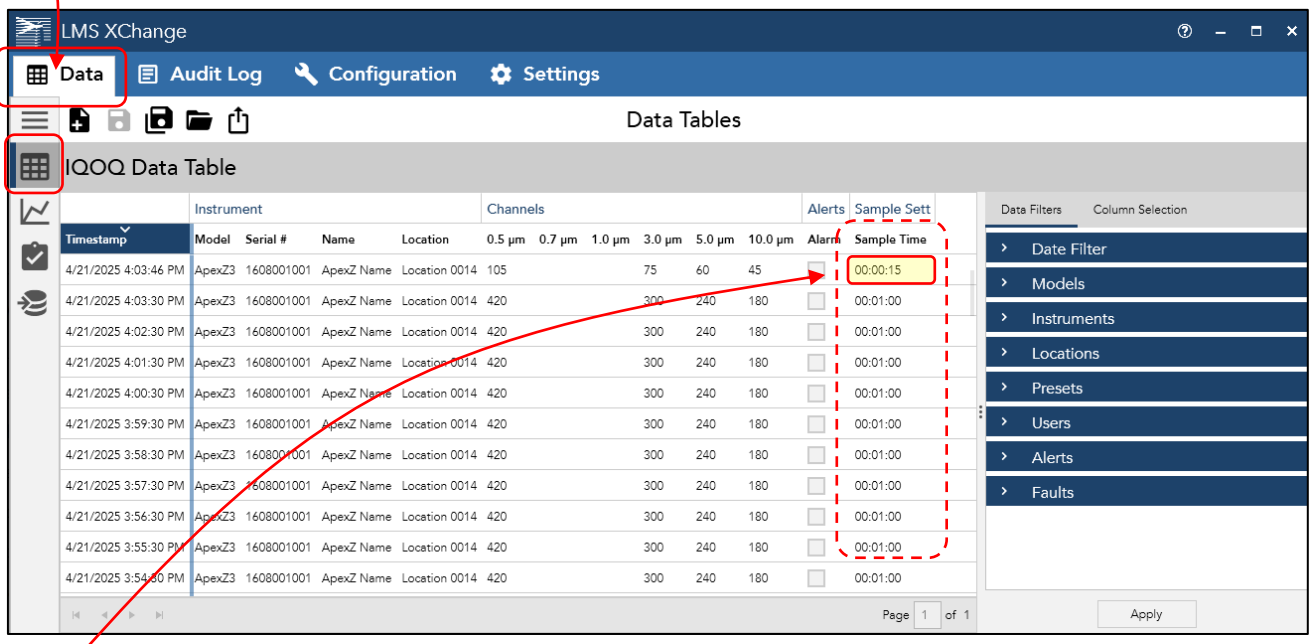
**Data Tab**

**Open Data Table**
Will bring up a list of any previously created Data Tables

**Data Filters**
Filters available here will vary depending on the data imported to LMS XChange

**Column Selection**
Columns available here will vary depending on the data imported to LMS XChange

**Data Table**




**Data Table – View and Export Data**

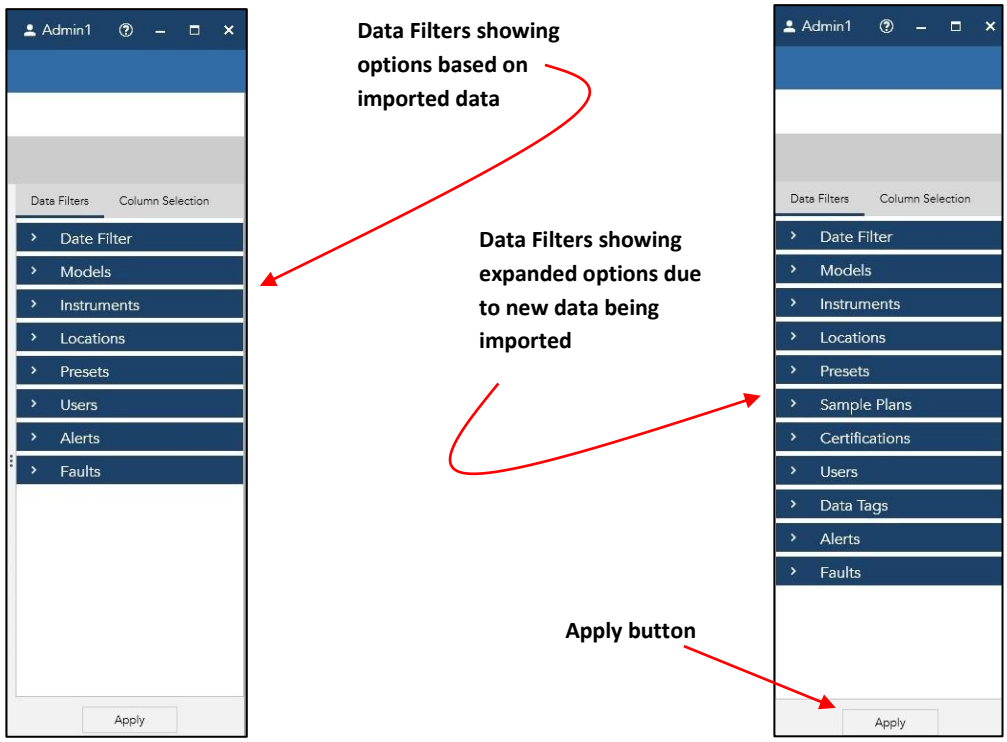
## Partial Sample Data Records

- Partial sample data records will show the actual sample time recorded. There will be no other indication of partial sample records other than their actual sample time recorded and displayed.

## Data Filters

Data Filters located on the right side of the Data Table screen can be selected to filter the rows displayed on the Data Table screen.

The Data Filters available will vary depending on the data that has been uploaded into LMS XChange. For instance, if data uploaded does not include any ApexZ Certifications, the Certifications filter will not be shown. Once any data which includes a Certification is imported into LMS XChange, the filter will become active and can be used. Single or multiple filters may be applied together.



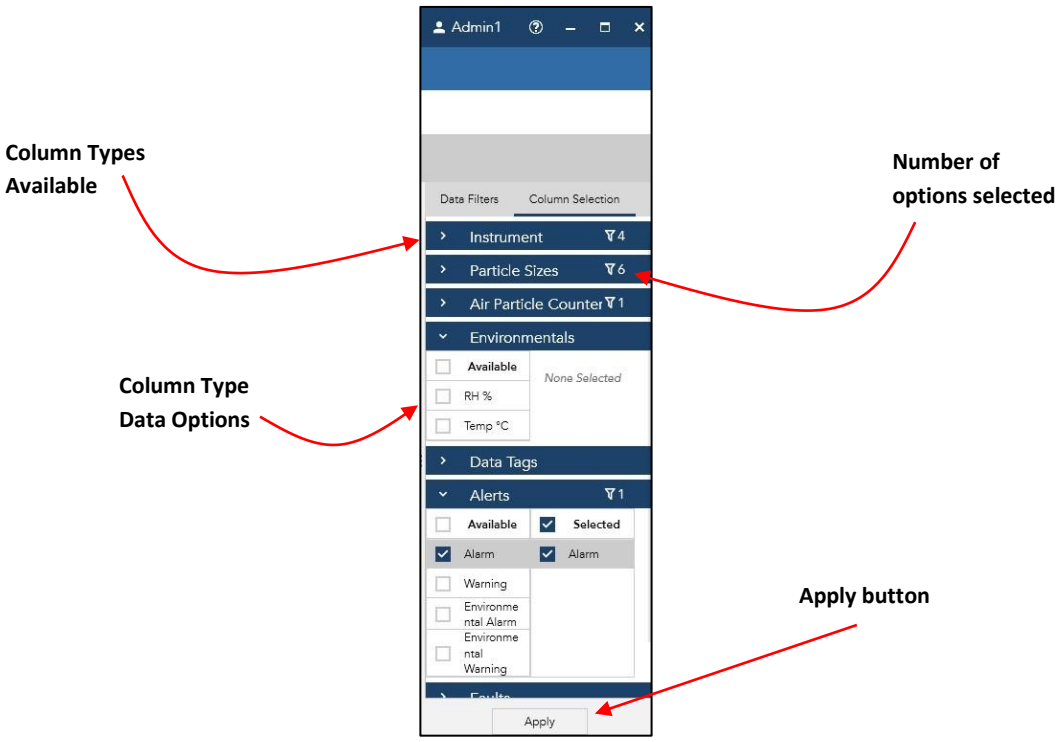

**Data Table Data Filters**

### Apply Filter

Expand the Filter list by clicking on the desired filter type, select the desired filters, and collapse the section by clicking on the filter type again. Once all selections are made, click the Apply button at the bottom. The selected filters will be applied and the data displayed on the Data Table will adjust accordingly.

## Column Selections

When the user clicks the Column Selection menu a list of all the column names that they can show or hide on the Data Table appears. Columns available will vary depending on the data that has been imported into LMS XChange. Each column type has a list of specific data options that can be selected to display under that column. If no options for a particular column type are selected, that column will not be shown in the Data View area. The column type heading shows how many options are selected from its options available.




The columns that are currently displayed in the Data Table are the only columns that will be exported when the user exports data to an Excel, CSV or PDF file.

By checking or un-checking column names on the Column Selection list, users can customize which columns of data are displayed in the Data View area and exported from LMS XChange.

Similar to the Data Filters, the available sections in Column Selection will vary depending on the data that has been imported into LMS XChange.

**Apply Filter**

Expand the Column Selection list by clicking on the desired column type, select the desired data types, then collapse the section by clicking on the column type again. Once all selections are made, click the Apply button at the bottom. The data displayed on the Data Table will adjust accordingly.

## Exporting Data

**Note:** When the user clicks export, all data records and columns currently displayed on the Data Table will be exported.

The currently displayed data on the Data Table can be exported to an Excel, CSV, or PDF file format.

To Export Data:

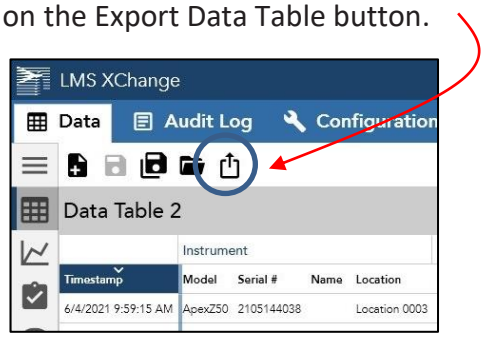
View the Data Table

Select and Apply any desired Data Filters.

Select and Apply the desired Column Selections.

**Note:** To customize a data export, use the Data Filter and Column Selection menus to select the desired records and information.

Click on the Export Data Table button.




The Export Data Button will bring up a Save As dialog box, allowing the user to name the file, select a type to save it as (Excel, CSV, or PDF), and select a location to save the file.

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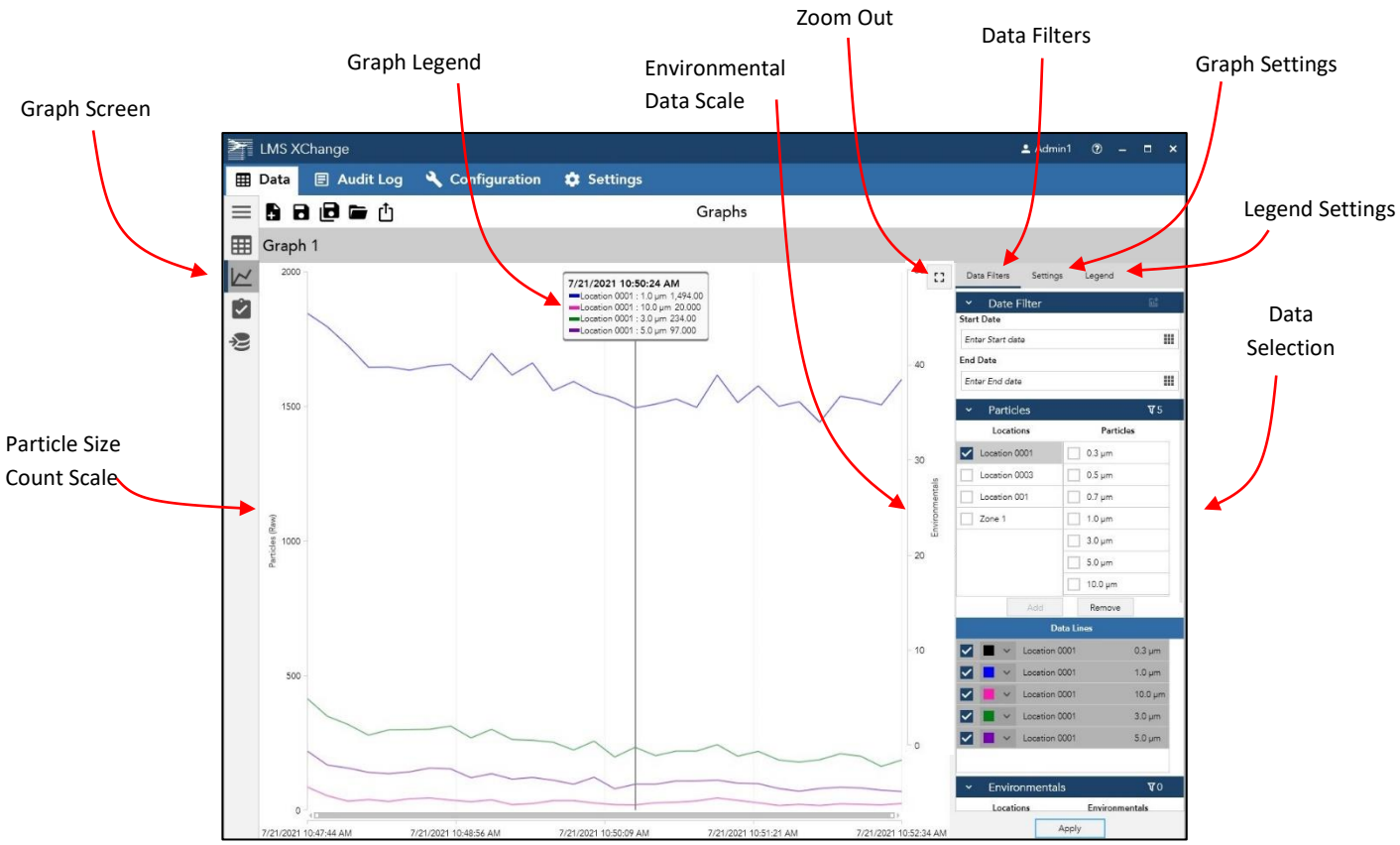
# Chapter 4 Graphs

## Graph View Area

The View Area on the Graph screen displays data selected via the Data Filters on the right side of the Graph screen. The Graph screen is useful for seeing particle and other data over a period of time, and multiple data types can be shown simultaneously. The example below shows Particle Data graphed for a particular Location.




The left side of the View area shows the Particles scale, while the right side shows the Environmental data scale. Along the bottom are date and time readings that will scale with the viewed area.

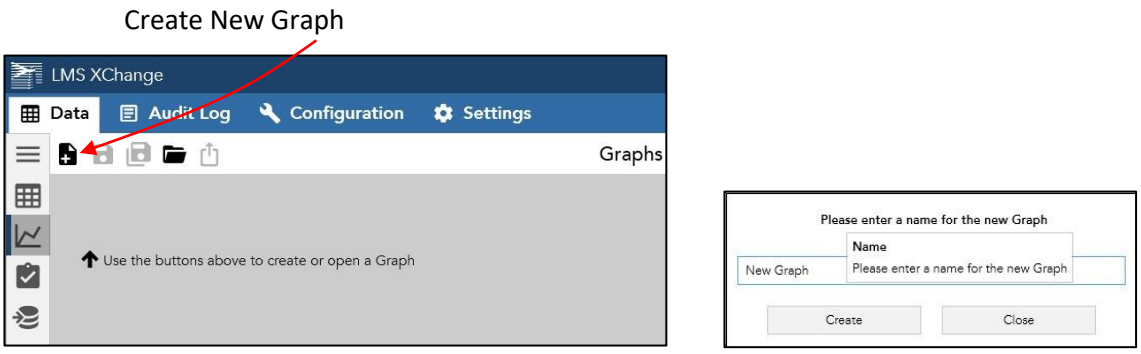
Hovering the mouse pointer over the View area will show the on-screen Legend for the data record nearest the pointer.

With the mouse pointer in the View area, the user can scroll in and out to view different amounts of available data. The user can also click and drag the cursor to create a selection area to zoom the view in. Pressing the Zoom Out button will return the View area to showing the full data range in accordance with the Date ranges set in the Data Filters.

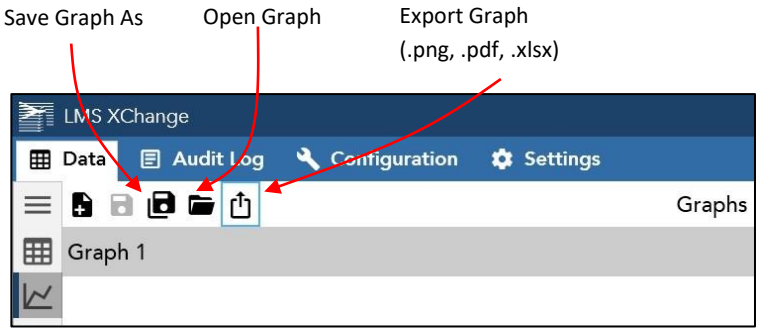
## Create, Save, and Export Graph

- Imported data can be displayed in graph form the Graph View area.

The first time LMS XChange is run, no Graphs will be displayed. Press on the Create Graph button to bring up the naming dialog box. Give the Graph a name, press Create, and the Graph View Area will display an empty Graph.



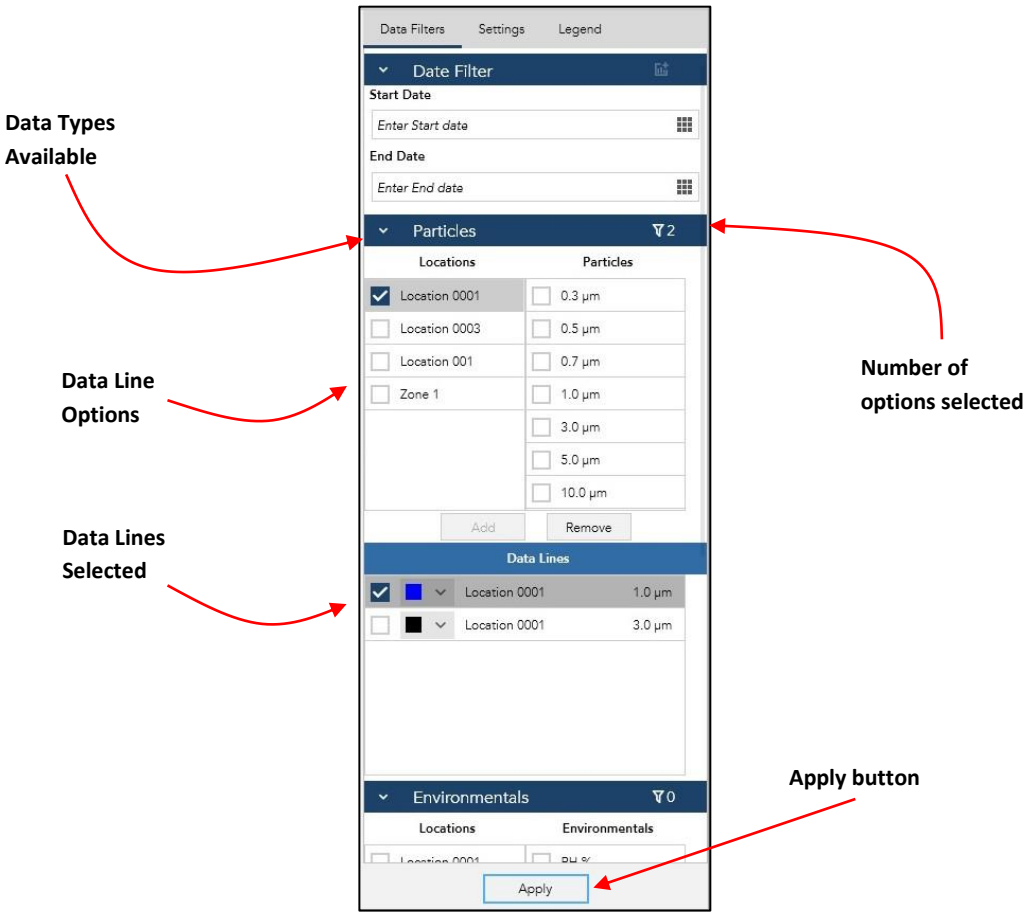

Once a Graph is created, the user needs to use the Data Filters and Settings Menus on the right side of the screen to choose the data to display. The user can also save the Graph with a different file name, open other previously saved Graphs, and Export the graph as a PNG, PDF, or Excel file.



## Graph Data Filters

Data Filters will be available for the Graph view based on the data that has been imported into LMS XChange.

Graphs allow the user to compare data over a set time range. The data sets are highly customizable and will include options from all Locations that have data imported into LMS XChange.

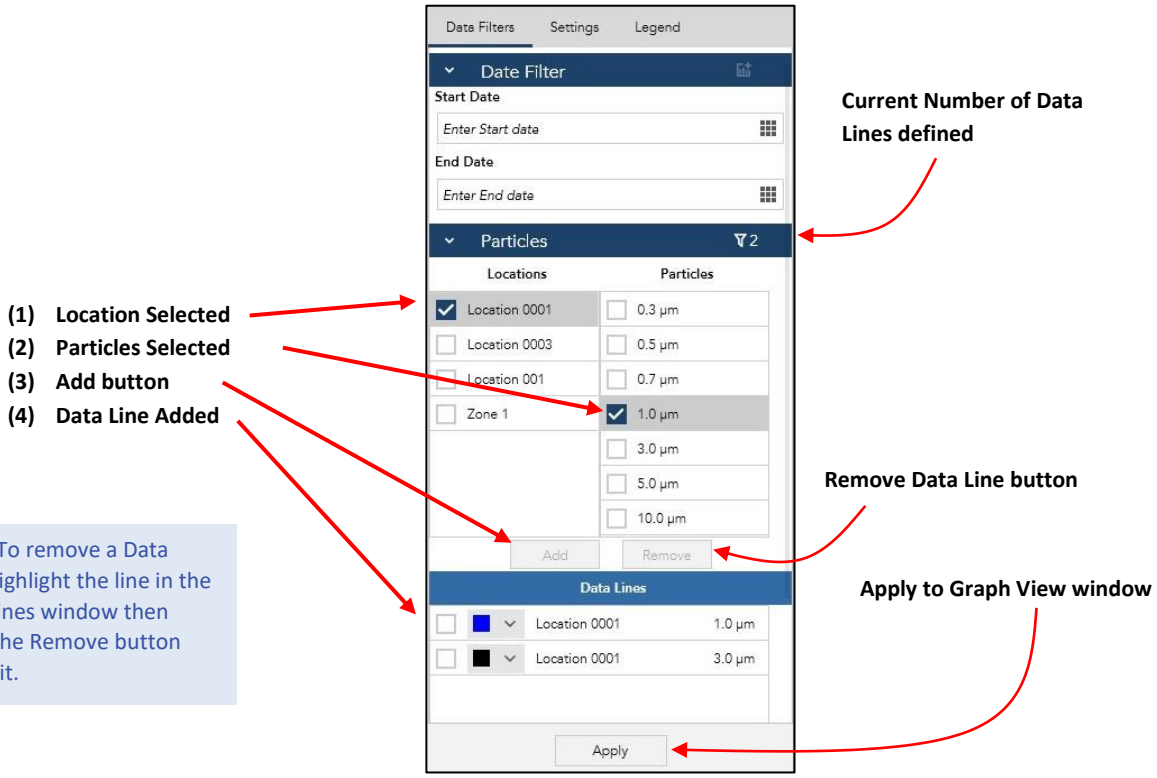



## Date Filter

The user will need to input a Start and End Date range for the data to be displayed on the Graph. If these dates are not selected, the Graph will include all available data records for the options selected in the rest of the Data Filters.

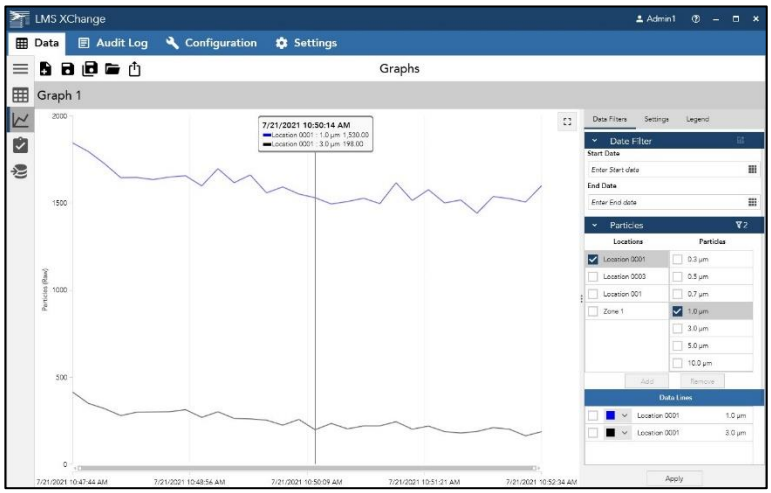
## Particles

One value from Locations and one value from Particles must be selected together, then the Add button must be pressed to create a new Data Line for the Graph. Each Location and Particle pair must be selected and Added individually, and all such selections will be displayed in the Data Lines box.




**Note:** To remove a Data Line, highlight the line in the Data Lines window then press the Remove button above it.

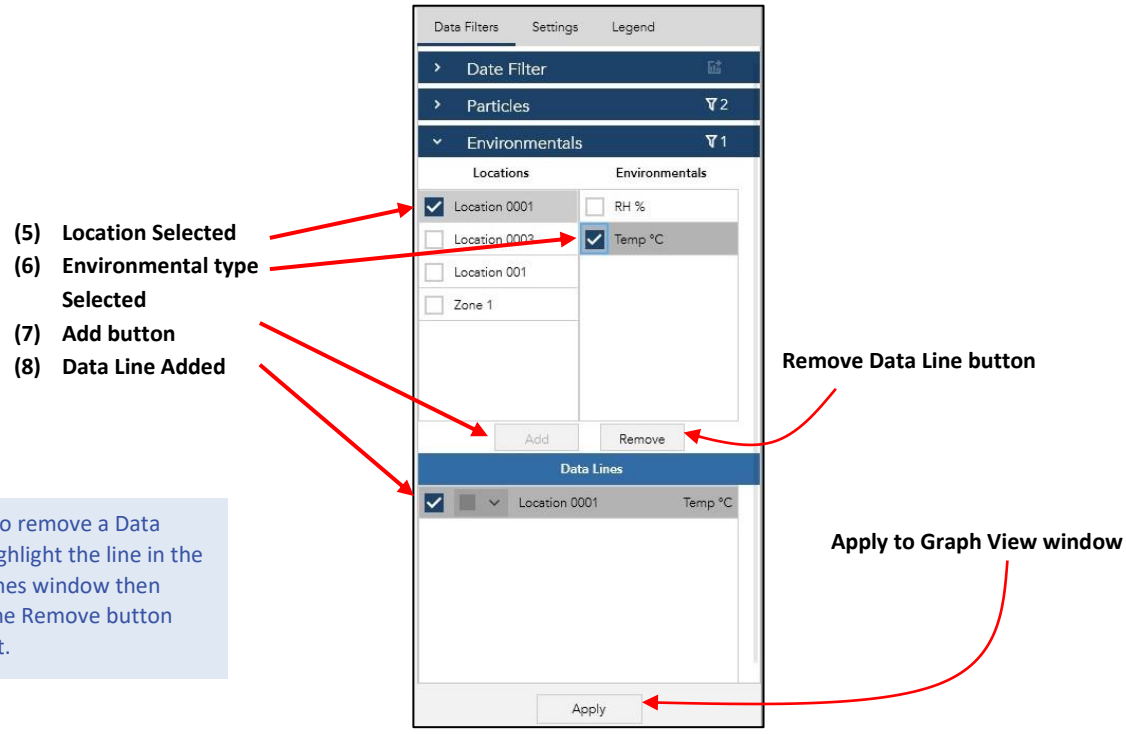
Once the selection is listed in the Data Lines window, a line color will automatically be assigned. The color can be changed by selecting a new one from the drop down menu within the Data Lines window. Once all desired Data Lines are added, press the Apply button at the bottom of the Data Filters menu to add that data to the Graph View window.




**Note:** Hovering the mouse pointer over the View area will display the on-screen legend for the record nearest the pointer.

## Environmental Filters

If Environmental Data has been imported into LMS XChange, the Data Filters will include selections for the Environmental Data collected. Similar to the Particles, one Location and one Environmental Data type must be selected together and then Added to the Data Lines.

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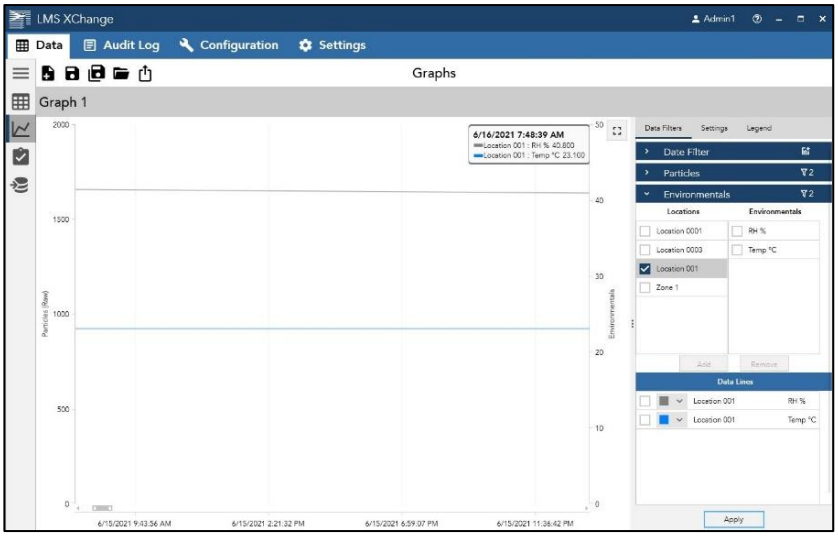
Once the selection is listed in the Data Lines window, a line color will automatically be assigned. The color can be changed by selecting a new one from the drop down menu within the Data Lines window.

Once all desired Data Lines are added, press the Apply button at the bottom of the Data Filters menu to add that data to the Graph View window.



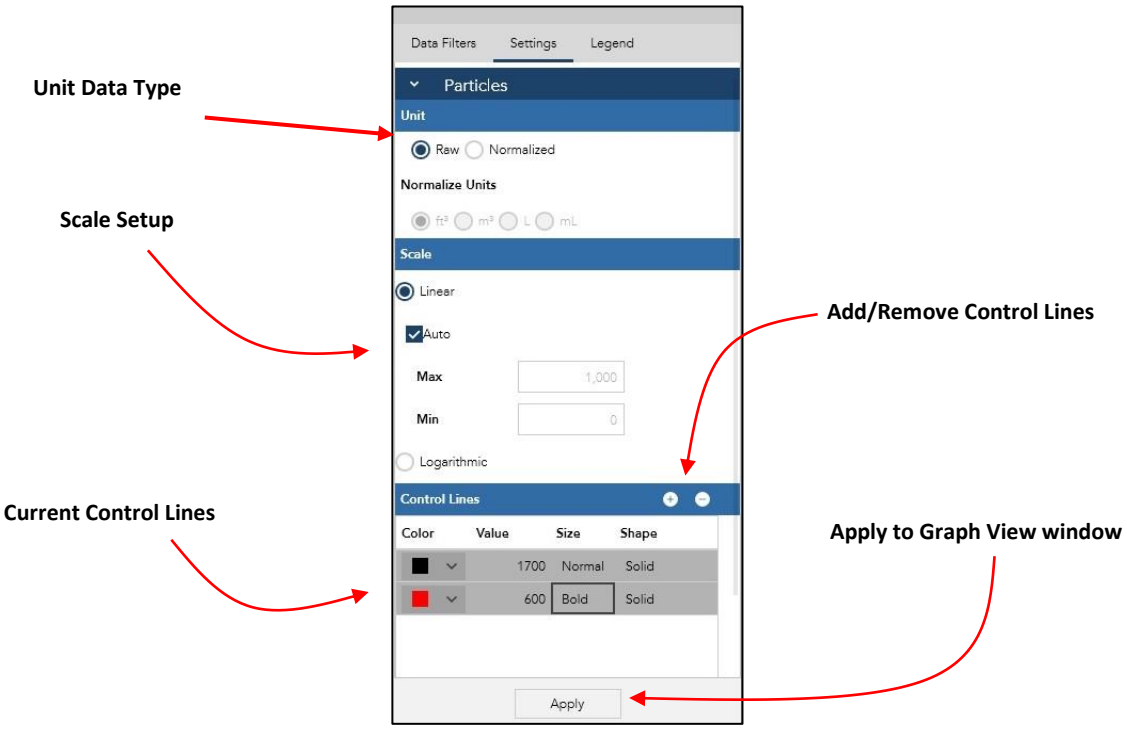

**Note:** Hovering the mouse pointer over the View area will display the on-screen legend for the record nearest the pointer.

## Graph Settings

The Settings tab in the Graph screen allows the user to modify the type of data shown in the Graphs, change the vertical scaling for the data, and add Control Lines.

### Particle Size Settings

Expand the Particles settings by clicking on the Particles header under Settings. This will display the various options for modifying the viewing of the Particles data set up in the Data Filters.




**Unit:** The Unit selections controls whether Raw or Normalized counts will be displayed. If Normalized is chosen, a measurement unit also must be selected.

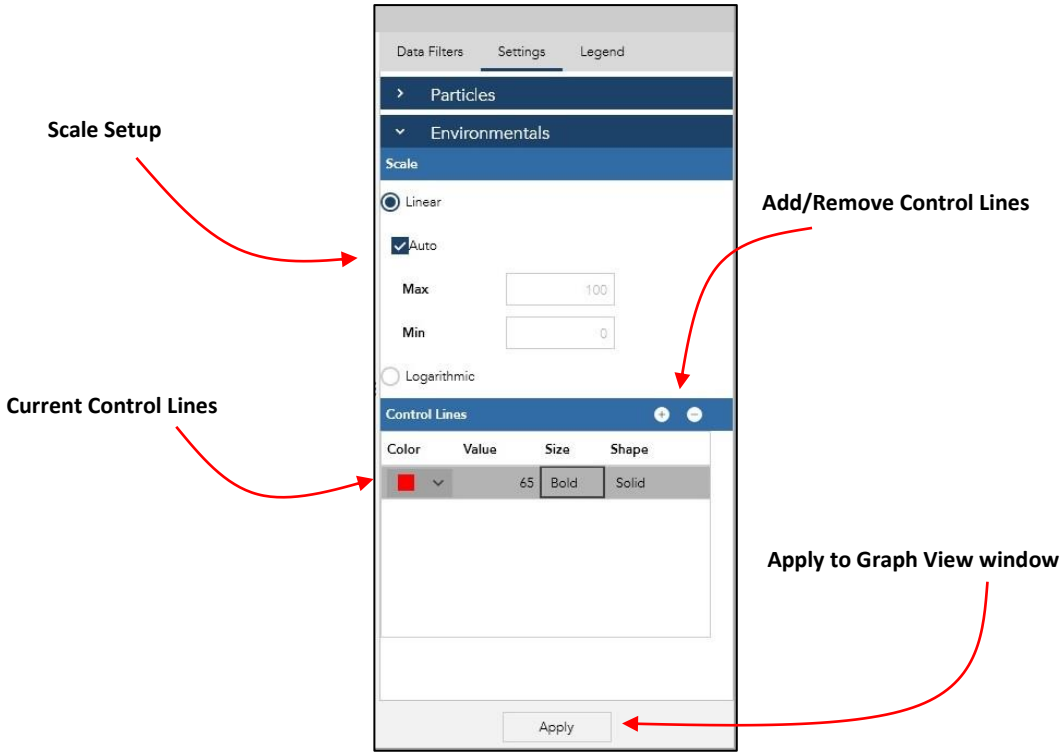
**Scale:** Scale options control the vertical scaling for the Particles data. The User can choose Linear or Logarithmic, and with Linear can decide to let LMS XChange automatically scale the window or set the vertical view size manually. Choosing Logarithmic disables the manual vertical scaling control.

**Control Lines:** Pressing the Plus button in the Control Lines header will create a new object in the Control Lines window. Control Lines adds a line to the Graph View window with the settings chosen here. The Color, Value, Size, and Shape are all customizable.

**Apply Settings**Press the Apply button to add these Setting changes to the Graph View window.

## Environmental Settings

Expand the Environmentals Settings by clicking on the Environmentals header under Settings. This will display the various options for modifying the viewing of the Environmental data set up in the Data Filters.




### Scale

Scale options control the vertical scaling for the environmental data. The User can choose Linear or Logarithmic, and with Linear can decide to let LMS XChange automatically scale the window or set the vertical view size manually. Choosing Logarithmic disables the manual vertical scaling control.

### Control Lines

Pressing the Plus button in the Control Lines header will create a new object in the Control Lines window. Control Lines adds a line to the Graph View window with the settings chosen here. The Color, Value, Size, and Shape are all customizable.

### Apply Settings:

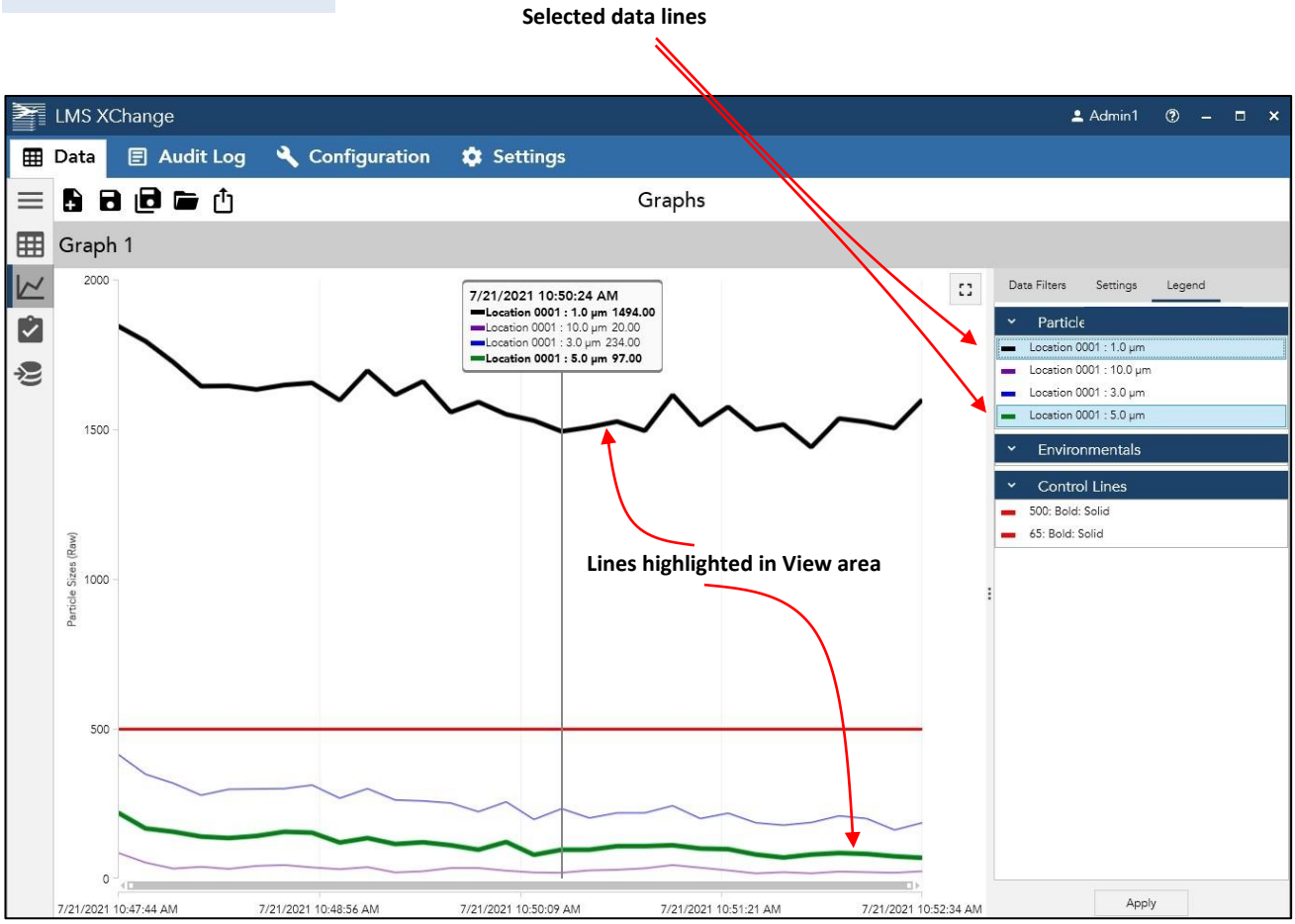
Press the Apply button to add these Setting changes to the Graph View window.

## Graph Legend

The Legend tab of the Graph window allows the user to view all of the graphed Data Lines and Control Lines. Selecting a line from the list in the Legend tab will highlight that line on the Graph View area, allowing it to be picked out more easily when there are multiple lines close together.

Lines selected in the Legend tab will also cause their corresponding data in the on-screen Legend window to be put in bold, indicating which lines are selected.

**Note:** No data manipulation occurs on the Legend tab.



# Chapter 5 Compliance Reports

**Note:** By default, all compliance reports from an instrument will be automatically imported when data is imported.

This default behavior can be disabled by disabling "Import Compliance Reports With Data" on the Settings Tab

**Note:** The buttons on the toolbar above the displayed Compliance Report can be used to cycle through the pages of multi-page compliance reports, as well as zoom in and out of the report and print the report.

**Note:** The statistics (ex. Mean Min, Max, St. Dev., Std. Error, and 95% UCL, if applicable) are calculated based on the average concentration of particles at all locations.

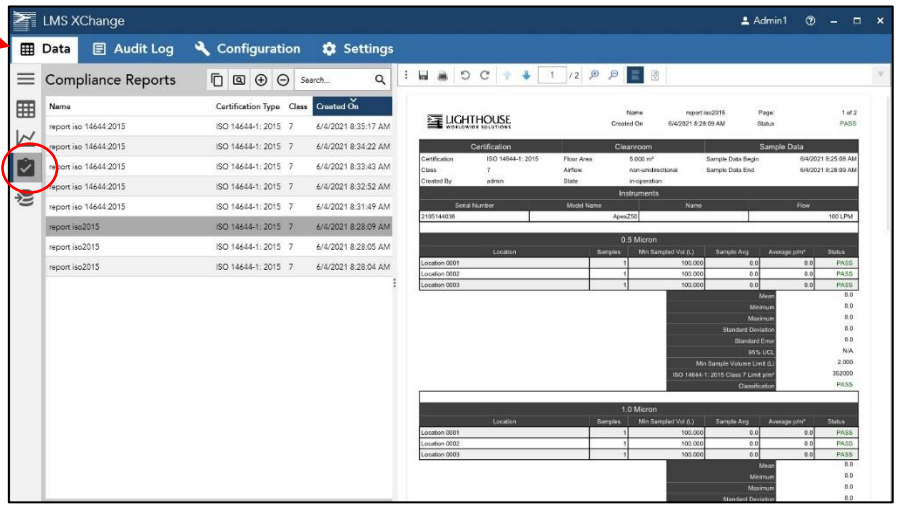
**Note:** Click on the column headers above the list of Compliance Reports to sort the reports listed by the report's name, certification type, class, or date created.

This chapter describes Compliance reports imported to and created in LMS XChange.

Compliance Reports can be imported and saved into the LMS XChange database from ApexZ when data is imported from ApexZ.

To display existing Compliance Reports as well as create new Compliance Reports, first click on the dashboard's **Data** tab.

Next press the Compliance Reports button on the left sidebar of the window.




**View and Create Compliance Reports Screen**

On the left side of the Compliance Report screen a list is displayed of all the Compliance Reports that have been imported to or created in LMS XChange. The Search bar can be used to search for specific reports.

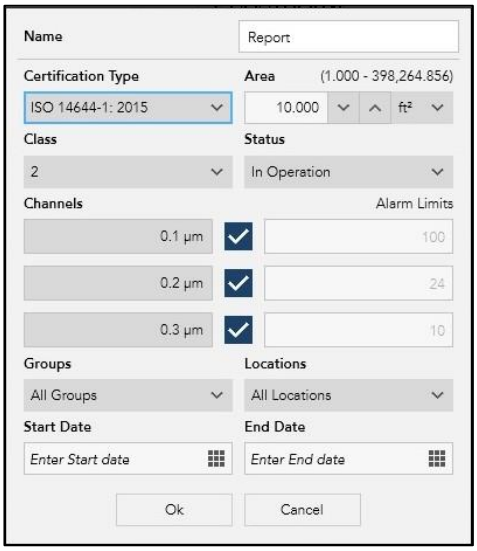
On the right side of the screen the PDF file of the Compliance Report currently selected from the list is displayed.

To display the pdf report associated with a compliance report, click on the desired Compliance report name. The display area on the right updates and displays the report.

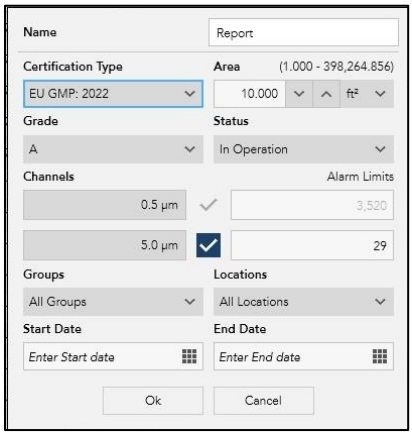
## Create Compliance Report

To create a new Compliance Report:

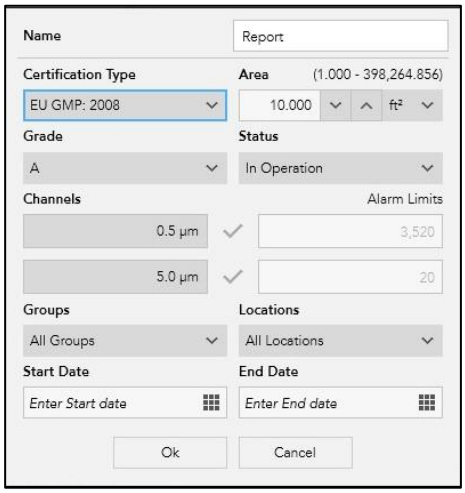
- Click on the Create Compliance Report button.
- Enter the desired settings for the Compliance Report on the New Compliance Report window that appears, starting with the Certification Type. See the windows below for the available options.



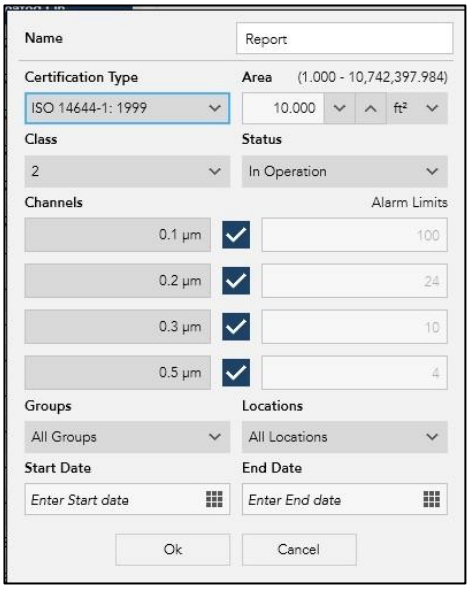

**ISO 14644-1: 2015**




**EU GMP: 2022**

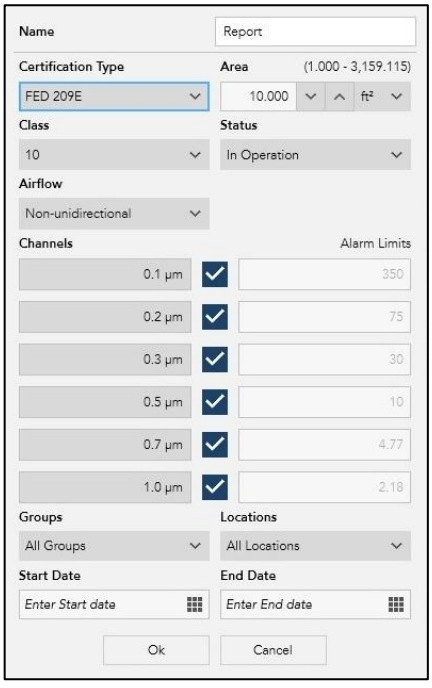



**EU GMP: 2008**




**ISO 14644-1: 1999**

- Click OK to generate the report and save the report's setup information.
- The new report will be added to the list of Compliance reports on the left of the screen, and the new report's output, a pdf, will be displayed on the right side of the screen.

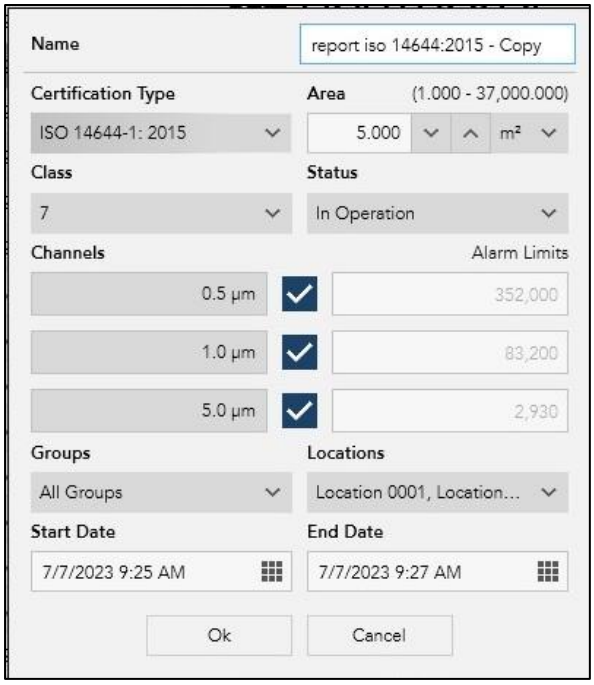



**FED 209E**

## Copy Compliance Report

To create a compliance report from an existing report, select the report to be copied in the list of Compliance Reports on the left side of the screen and click the Copy Compliance Report button.

The Copy Compliance Report window appears.




**Copy Compliance Report Window Example**

The copied report's information is displayed on the Copy Compliance Report window. All of the settings for the report can be edited as needed.

By default, the suggested name for the copied Compliance Report is the name of the previous report appended with "- Copy".

## View Compliance Report Settings

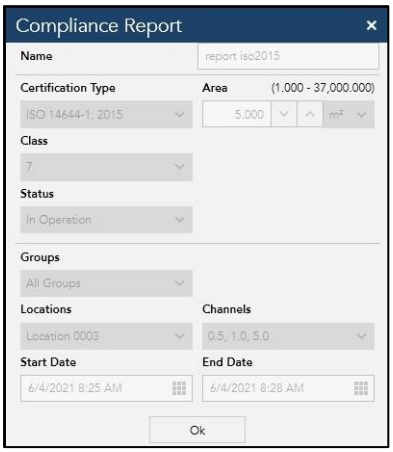
To view all the settings for an existing compliance report, including its start and end date and the locations used, select the report in the list of Compliance Reports on the left side of the screen and click the View Compliance Report button.

The Compliance Report window appears and displays the reports settings. Click OK to close this window.

**Note:** All information on the Compliance Report window is read-only.

Compliance Reports, once created, cannot be edited.

If a different set of report parameters is needed, either copy an existing Compliance Report or create a new Compliance Report.




**Compliance Report Window**

## Delete Compliance Report

To delete a Compliance Report, select the report to be deleted on the list of Compliance Reports on the left side of the screen and click the Delete Compliance Report button.

# Chapter 6 Import Data

This chapter describes how to import data into LMS XChange from Apex, Solair, Vertex, and Handheld instruments; available USB flash drives; local files; and available LMS Express databases.

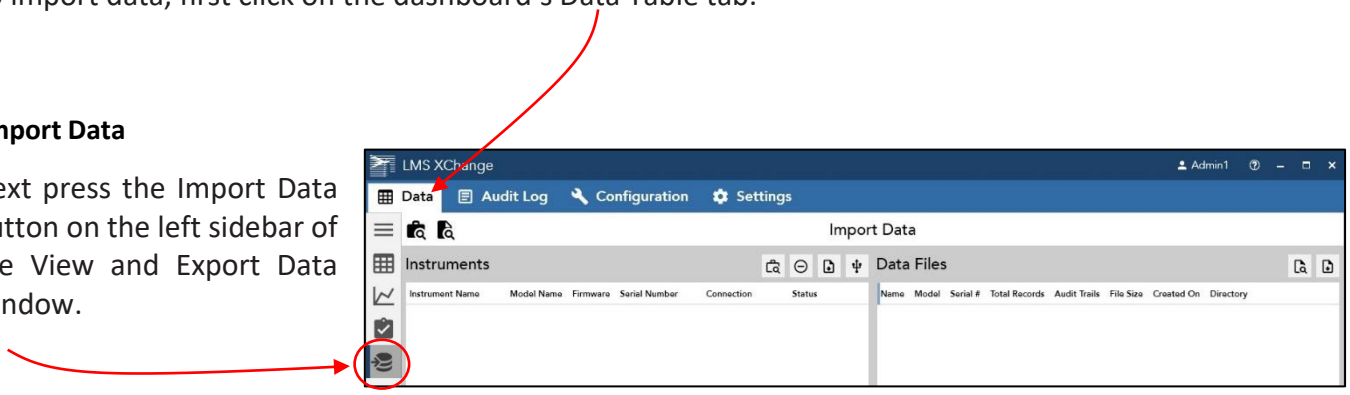
Data can be imported and saved into the LMS XChange database from connected ApexZ, Apex Remote, Apex Portable, Solair Portable, Vertex, or Handheld instruments, and from .lsdx, .lsd, and .lsrx data files saved on a USB key or accessible to the computer running LMS XChange. Data can also be imported from LMS Express by using the Import Database function in the Settings screen.

## Import Data Screen

To import data, first click on the dashboard's Data Table tab.

**Import Data**

Next press the Import Data button on the left sidebar of the View and Export Data window.




**Import Data Screen**

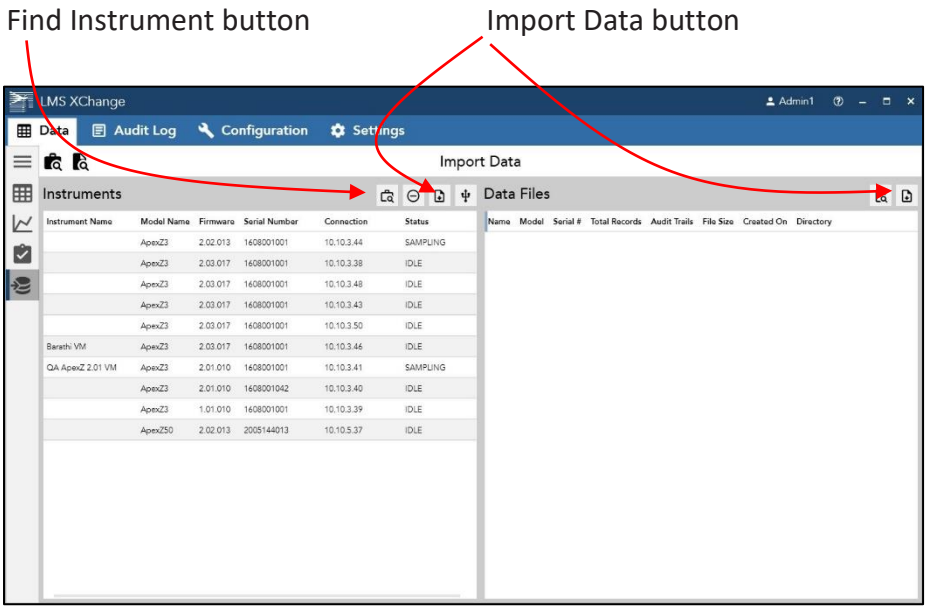
This will bring up the Import Data screen.

**Note:** LMS XChange will search for data files in the following folders:

Downloads
My Documents
Favorites
Personal
Application Data
Local Application Data
Desktop Directory
Common Desktop Directory
Common Documents

On the left side of the Import Data screen a list is displayed of all the instruments that have been detected. On the right side of the screen a list is displayed of all the locally found data files.

Select an instrument on the list of auto-detected instruments on the left side of the screen, or use the Find Instrument button, above the list, to connect to an available instrument.

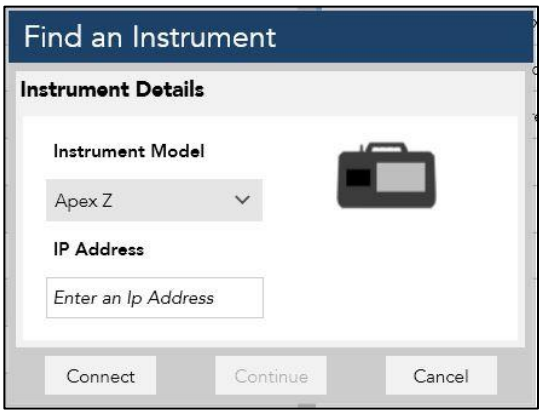



**Import Data Screen**

**Note:** You can re-order the list of instruments in the Instrument list by clicking on the list's column headers, Instrument name, Model Name, etc.

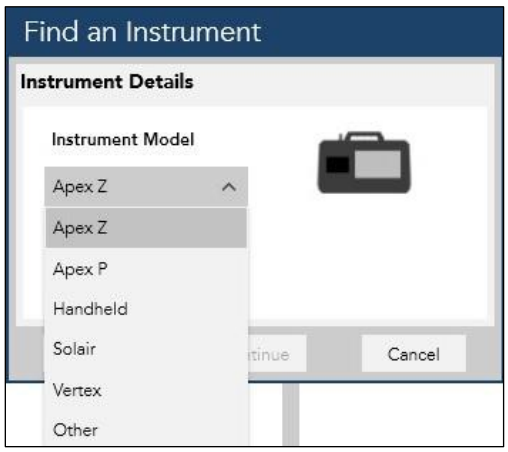
## Find Instrument

If the desired instrument has not been auto-detected and added to the list of instruments, click the Find Instrument button to bring up the Find an Instrument window.



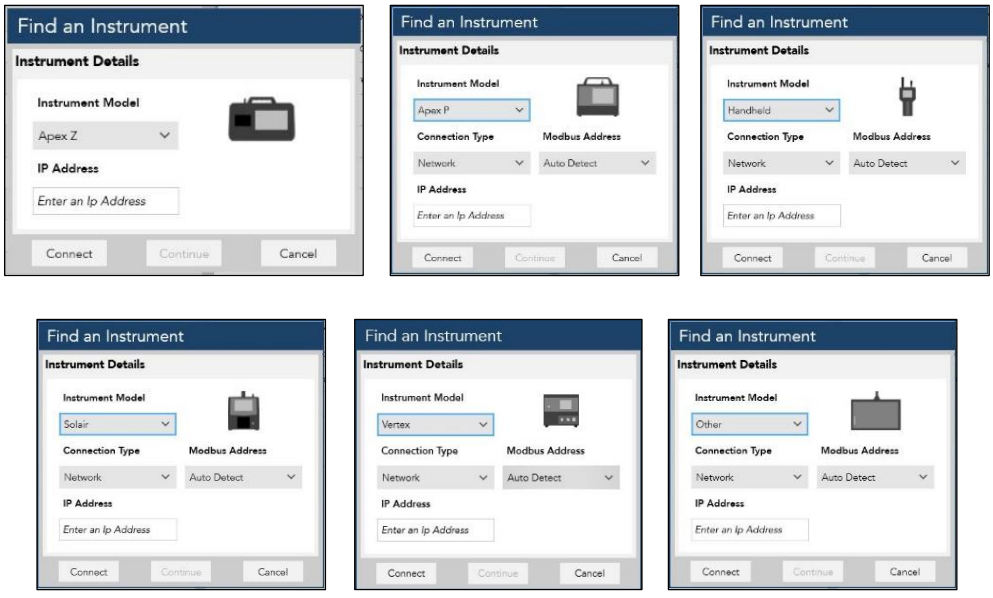

**Find Instrument Window**

The information needed to connect to an instrument varies depending on model of the Instrument, so on the Find an Instrument window select the instrument's model from the list of available models. If not listed, select Other.




**Find an Instrument, Instrument Model List**

After an instrument model is selected, the Find an Instrument window updates, displays a picture, if available, of the instrument model, and shows the fields necessary for LMS XChange to connect to it.




**Find Instrument fields**

Select or enter the information needed to connect to the desired Instrument, and click Connect. LMS XChange attempts to connect to the instrument.

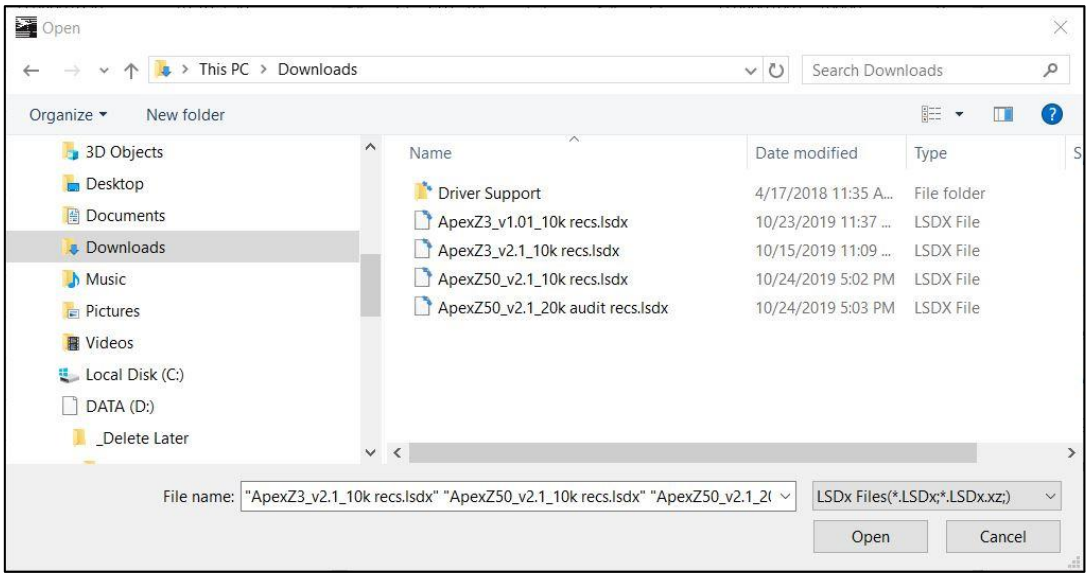
If LMS XChange is able to successfully connect to the instrument, the Find an Instrument window updates to show information about the now connected instrument.

Click ok, and the instrument will be added to the list of connected instruments on the Import Data screen.

## Find Data File

If the desired data file has not been auto-detected and added to the list of data files on the right side of the Import Data screen, click the Find Data File button to search for it.

The Find Data File window will appear.




**Find Data Files Window**

Use window's file system to locate the desired data file, select the file, and click the Open button.

The data file will be added to the list of data files on the right side of the Import Data screen.

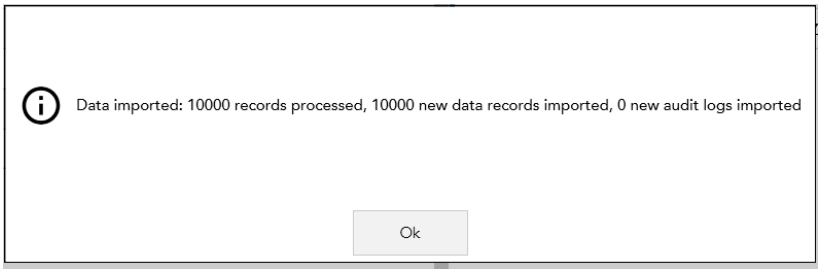
## Import Data from an ApexZ Instrument

**Note:** By default, if the instrument has an audit log, all audit log records from the selected instrument will be automatically imported when data is imported.

To Import Data from an ApexZ, select the desired instrument from the list of connected instruments on the Import Data screen and click the Import Data button. LMS XChange will start importing data and display the Data Download progress window.


**Import Data Progress window**

When LMS XChange has finished importing data from the instrument, a status message, like the message below, will be displayed letting the user know how many data and audit log records were successfully imported.




**Status, Data imported**

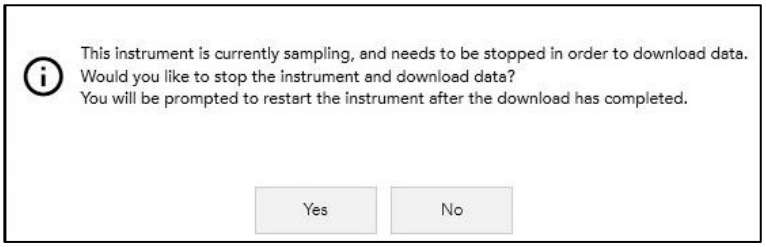
## Import Data from an ApexR Instrument

In order to download data from ApexR units, the instrument must be connected to LMS XChange properly, depending on the unit type.

ApexR Serial units must be connected via USB-to485 cable, and ApexR PoE units must be connected over Ethernet. Otherwise the program will be unable to import data from these units.

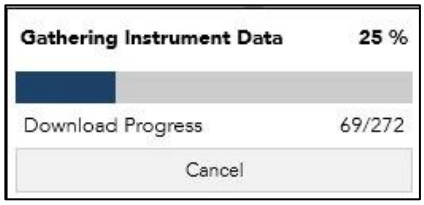
When attempting to import data from a connected ApexR unit, the process is similar to that as when downloading from an ApexZ. However, if the unit is currently sampling, a popup will display to indicate that the unit needs to be stopped first. LMS XChange will offer to stop the unit in order to proceed with the data import.

**Note:** When downloading from a connected Modbus unit, be sure that stopping the unit will not interrupt critical sampling.

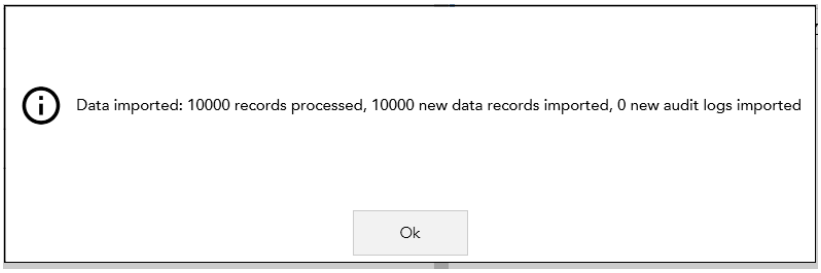



**Sampling Modbus unit Data Import Prompt**

Select Yes to stop the instrument and import the data from the unit. LMS XChange will start importing data and display the Data Download progress window.




When LMS XChange has finished importing data from the instrument, a status message, like the message below, will be displayed letting the user know how many data and audit log records were successfully imported.




**Status, Data imported**

After acknowledging the Data Import message, XChange will offer to clear the Data Buffer from the connected unit.


Select Yes to delete all the records from the units data buffer, or No to leave the data on the unit.

If LMS XChange had stopped the unit prior to enacting the Data Import, another popup will display, giving the user the ability to restart sampling on the unit.


## Import Data from previous ApexZ FW versions (down to v1.0)

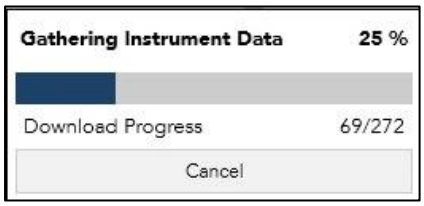
LMS XChange can import data from ApexZ v1.0 and above instruments.

- LMS XChange is able to auto-discover ApexZ v1.0 instruments and add them to the list of instruments on the Import Data Screen.
- If for some reason LMS XChange does not auto-discover the ApexZ v1.0, use 'Find Instrument" and enter the IP Address of the ApexZ v1.0.

## Import Data from Units Other Than ApexZ

Importing data from units other than an ApexZ will involve the use of a Location List. The first time LMS XChange sees a new instrument the import will also include the Synchronization Issue window. The Synchronization Issue window is covered in-depth in Appendix B, and an abbreviated description is given here.

Click on any instrument listed in the Import Data screen and select the Import Data button. LMS XChange will first display a "Verifying Locations" progress bar, followed by the "Gathering Instrument Data" progress window.




**Gathering Instrument Data Progress window**

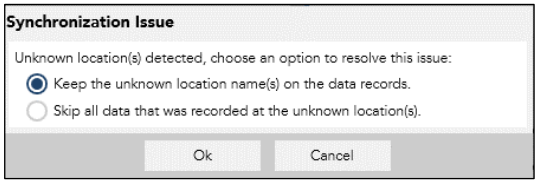
If this is not the first time data from this instrument has been imported into LMS XChange, a Location List may already be defined and the import will be done at this point and the data will be available within LMS XChange.

If this is the first time data from this instrument has been imported into LMS XChange, once the "Gathering Instrument Data" window hits 100% the Synchronization Issue window will be displayed. There are three possible scenarios with this window: Importing with no Location Lists, importing with one Location List, and importing with more than one Location List.

### Importing Data with no Location Lists

If there are no Location Lists saved in LMS XChange, the following window will pop up:

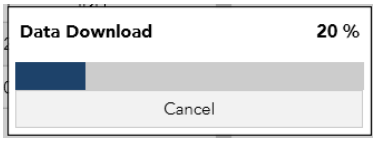
**Note:** See Appendix B for more details and practical examples.



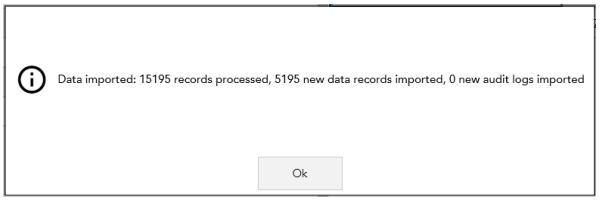

**Synchronization Window – No Location Lists Saved**

Selecting the second option will discard any data from unrecognized locations.

Choosing the first option and clicking OK will bring up the "Data Download" progress bar. When complete, the "Data Imported" window will display.




**Data Download Window**




**Data Imported Window**

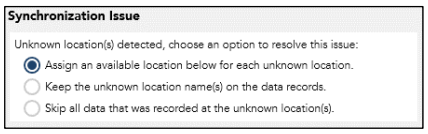
If the data was imported from a MODBUS unit that is not a Remote, the user can go to the Configuration screen and save the Configuration from the unit. This will create a Location List matching the Locations setup from the imported units' data.

If the data was imported from a Remote unit, attempting to save the Configuration in the Configuration screen will result in an error, as Location names are not supported on Remote units.

## Importing Data with One Location List Saved

If there is a Location List saved in LMS XChange, the Synchronization Issue window will display for Remotes if imported data does not fall within the location range (1-200) and for Portable units when there is a naming mismatch for the Locations used. The Synchronization Issue window will display three options when it pops up.

**Note:** If data has previously been imported to a Location List from the unit, no Synchronization Issue window will be displayed. The previously chosen Location List will be used.




**Synchronization Window – One Location List Available**

**Note:** See Appendix B for more details and practical examples.

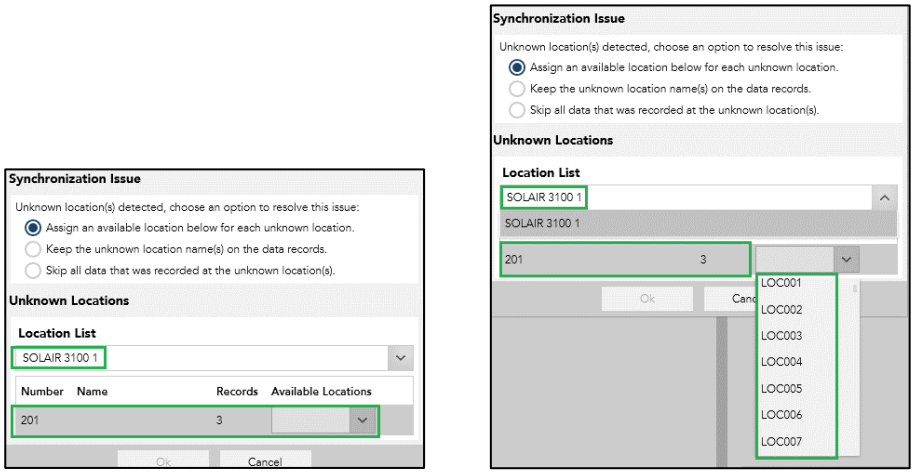
**For Remote Units:**

The third option discards all records for the unknown Locations.

The second option follows the actions as if importing the data with no Location List, and the user can save the configuration (if a Portable unit) in the Configuration screen.

The first option allows the user to select a Location from the Location List dropdown menu, then select any Location from the “Available Locations” list dropdown. Click OK and the Location will be assigned and the data imported into LMS Change.

**Note:** Remotes have no location names saved on the instrument, so the Name column will be blank.

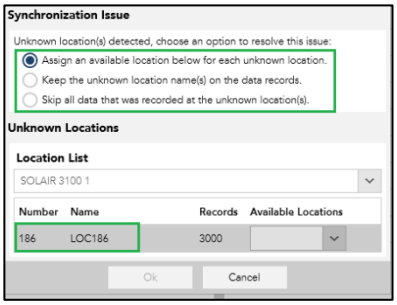



**Synchronization Window – Assigning Location From List**

## Importing Data with Two or more Location Lists Saved

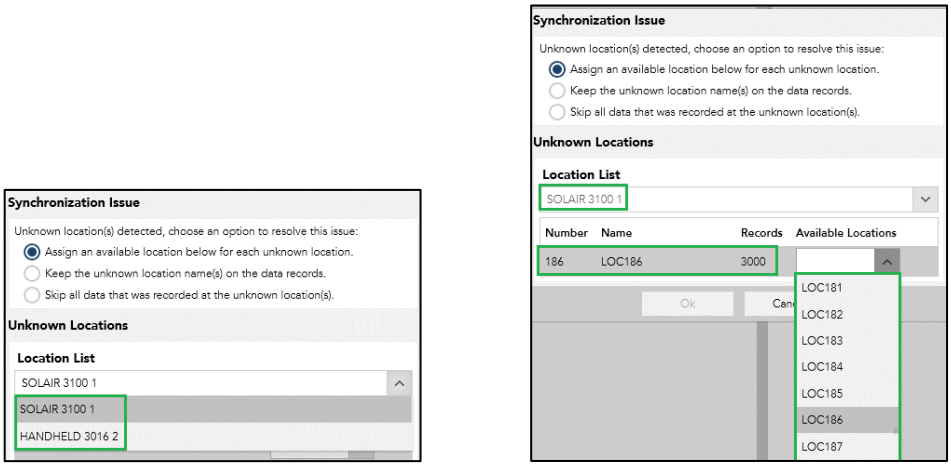
**Note:** See Appendix B for more details and practical examples.

If there is more than one Location List saved in LMS XChange, the first time data is imported from a new unit the Synchronization Window will be displayed. LMS XChange needs to know which Location List to use for this new instrument.



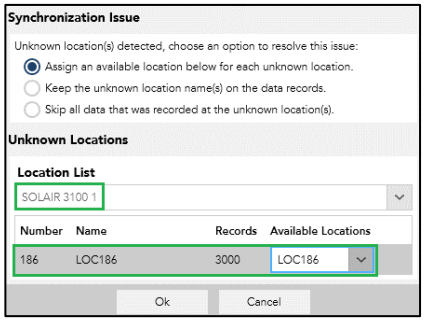

**Synchronization Issue Window**

Selecting the first option from the list allows the user to select a Location List from the Location List Dropdown menu then assign a Location using the Available Locations dropdown menu.




**Synchronization Issue Window – Selecting Location List and Location**

Once a Location List and Available Location are selected, click the OK button.



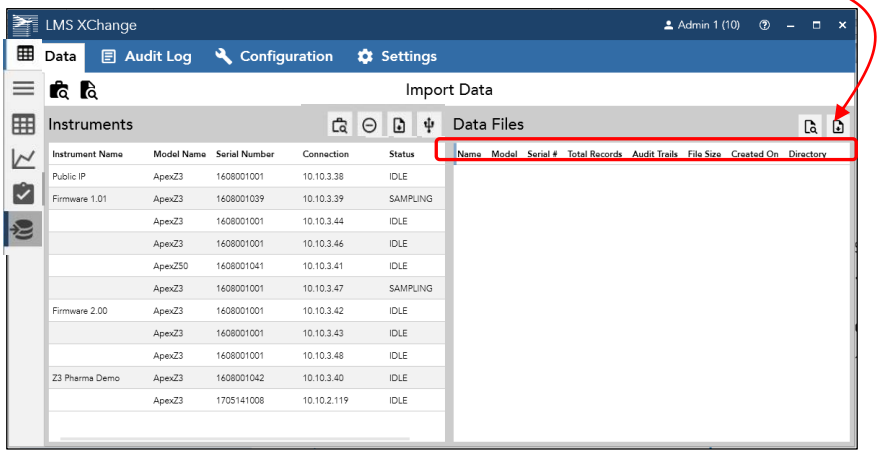

**Synchronization Issue Window – Location List and Location Selected**

The selected Location will be assigned, and the data will be imported into LMS XChange.

## Import Data from a LSD, LSDX, or LSRX file

To import data from a .lsd, .lsdx, or .lsrx file:

- Select a .lsd, .lsdx, or .lsrx file from the list of auto-discovered data files on the right side of the Import Data screen, and click the "Import Data File" button.

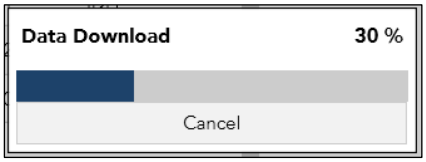



**Importing data from a data file**

**Note:** By default, all audit log records from the selected data file will also be imported automatically when data is imported, if the data file contains audit log records.

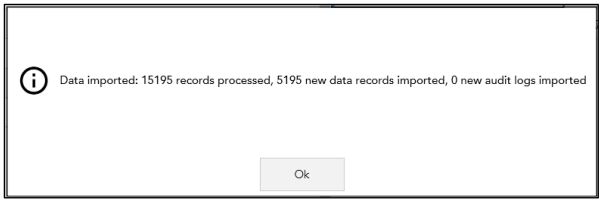
- If the data file does not appear in the list of Data Files, click the "Find Data File" button, , to locate a .lsd, .lsdx, or .lsrx file on the computer or accessible network drive.

- Once LMS XChange has started importing the data file, a progress window will appear.




**Progress bar, importing data from a data file**

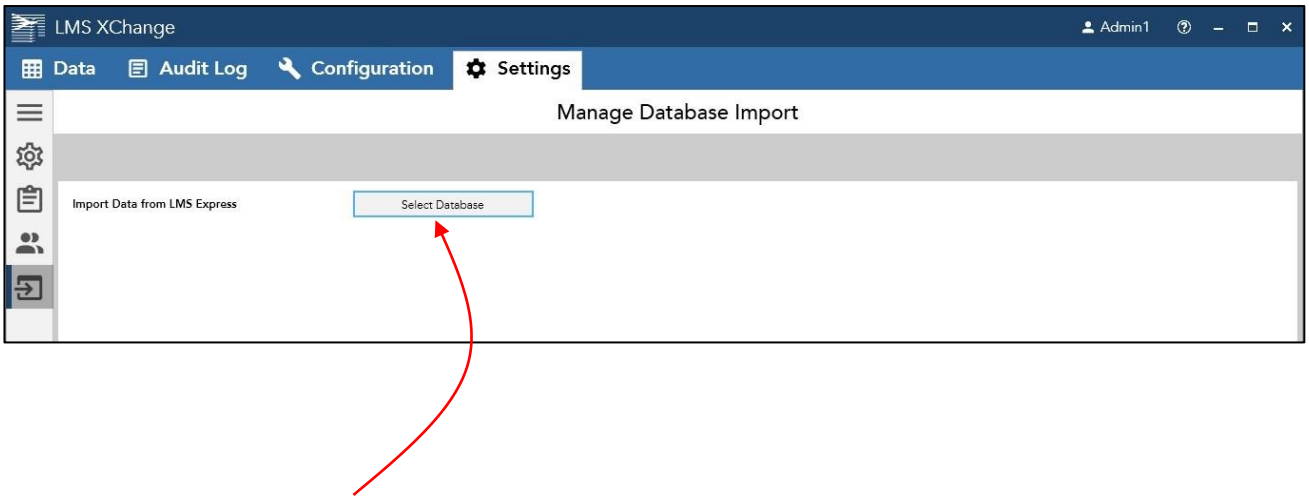
When LMS XChange has finished processing the data file, it will display a status window stating that the import completed and report the number of successfully imported records. These records can then be viewed on the LMS XChange Data Table.




**Status, import completed.**

## Import Express Database

LMS XChange can import also all data from an LMS Express database. Use the below feature on the Settings, Import Database screen to accomplish this.




*Import Database from LMS Express*

Select the LMS Express .db3 database, via its file, and import its data.

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# Chapter 7 Audit Log

This chapter describes LMS XChange Audit Log and how to navigate within the screen, use the Data Filters, add Comments to records, and export records in the Audit log to Excel, CSV, or PDF Files.

## View Audit Log Records

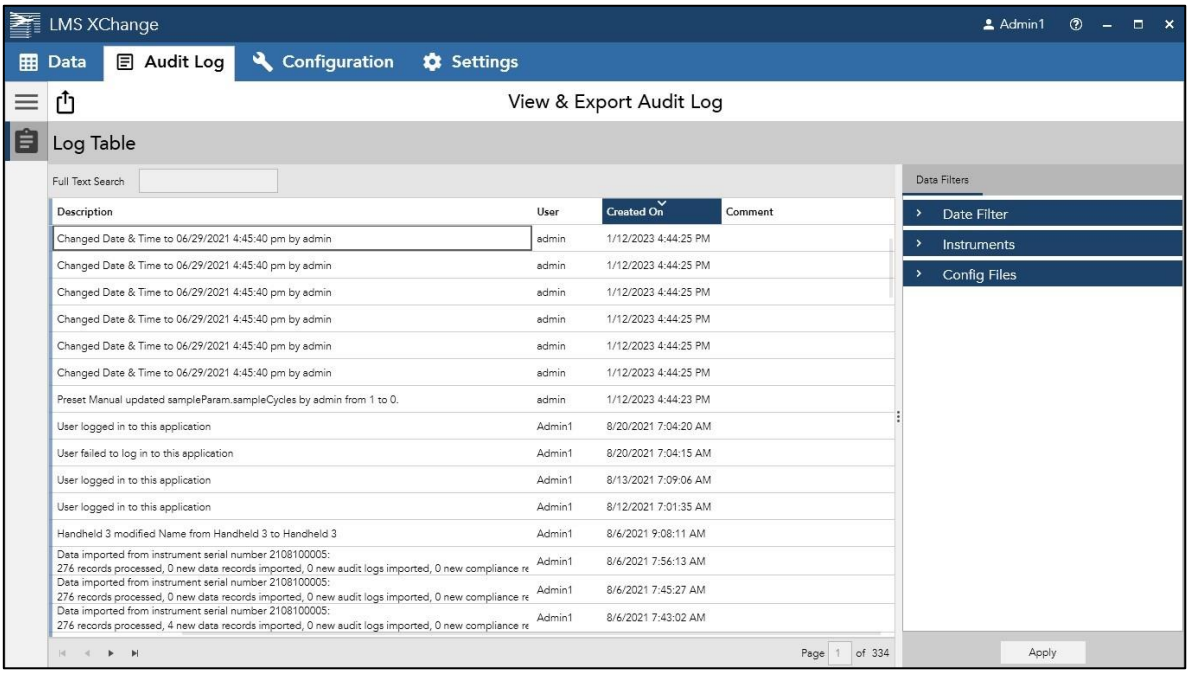
Audit Log

**Note:** LMS XChange defaults to import Audit Log records when data is imported from instruments or LSDX data files.

If an Administrator needs to disable this option, they can via LMS XChange Application Settings screen.

The Audit Log contains information about LMS XChange logins and logouts, user additions, and changes to locally saved configuration files. The Audit Log also includes information associated with data imported into LMS XChange – including configuration changes on the instrument that recorded the data.

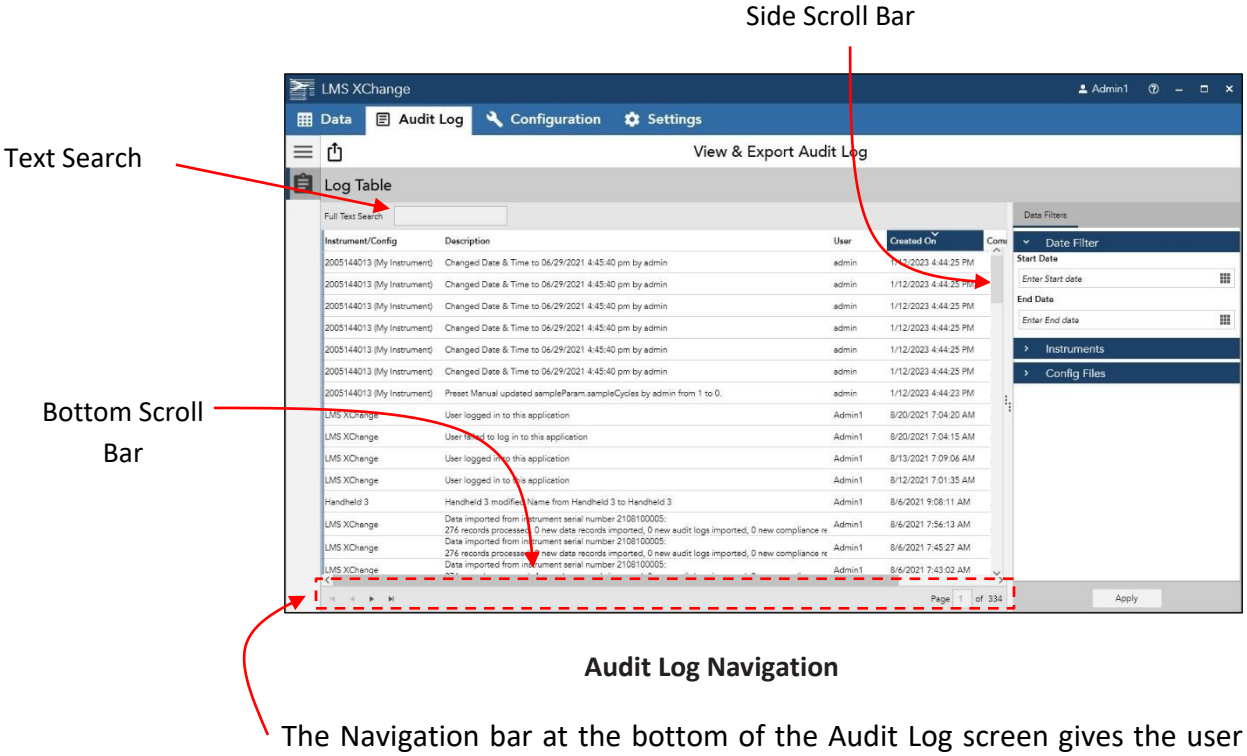
When data is imported from an instrument, Audit Log records are automatically imported and saved into LMS XChange. If a data file has an associated Audit Log file, when the data file is imported, its Audit Log records will also be imported along with the file's data. All Audit Log records saved in LMS XChange can be viewed on the Audit Log screen.




**Audit Log View Screen**

## Audit Log Navigation

Navigation on the Audit Log screen can be effected by using the scroll bars located at the bottom and right side of the Audit Log view area, using the page navigation buttons at the bottom of the view area, and using the Full Text Search window to locate particular text. Users can also modify the size of each column shown in the view area.

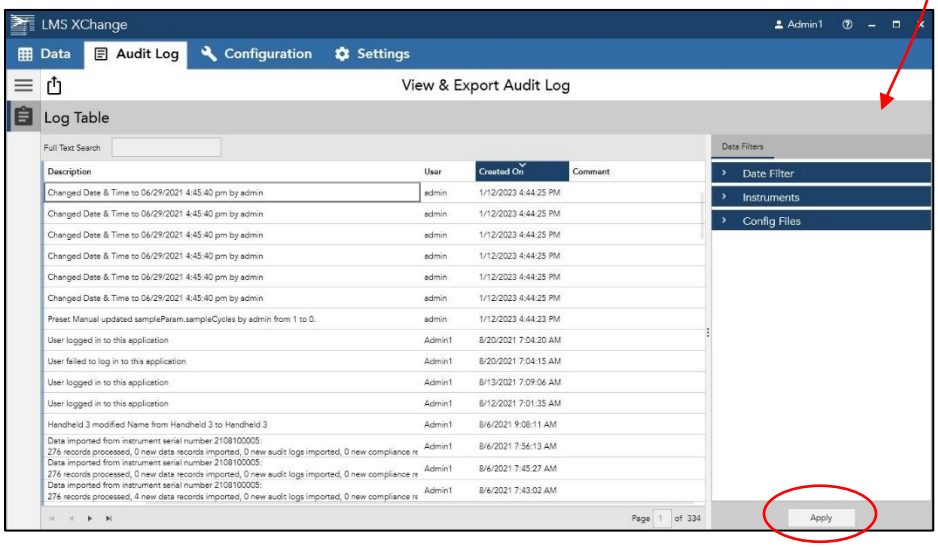



**Audit Log Navigation**

The Navigation bar at the bottom of the Audit Log screen gives the user the ability to move through the pages of the Audit Log as well as see which page they are currently on out of the total available. The current and total values dynamically update when text searches are done to reflect result pages.

## Log Filters

Users can use the Data Filters located on the right side of the screen to filter the Audit Log rows that are displayed on the Log Table.

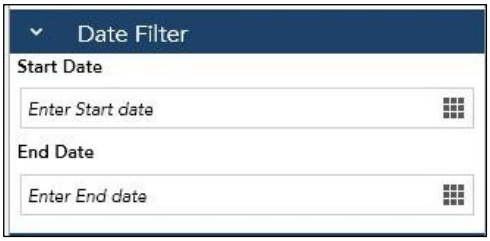



**Audit Log Filters**

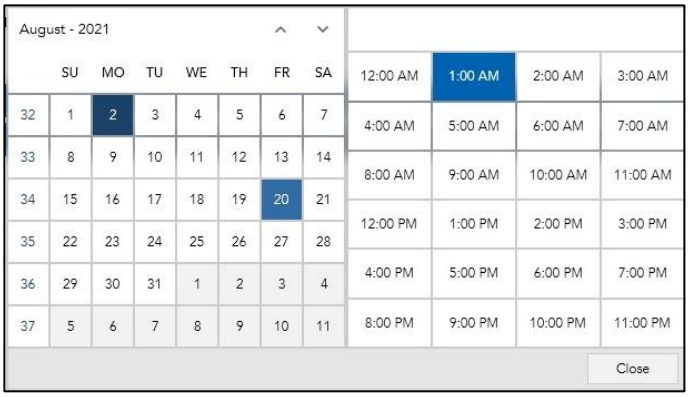
Apply button

### Date Filter

The Date Filter allows the user to set a specific Date and Time




**Audit Log Date Filter**



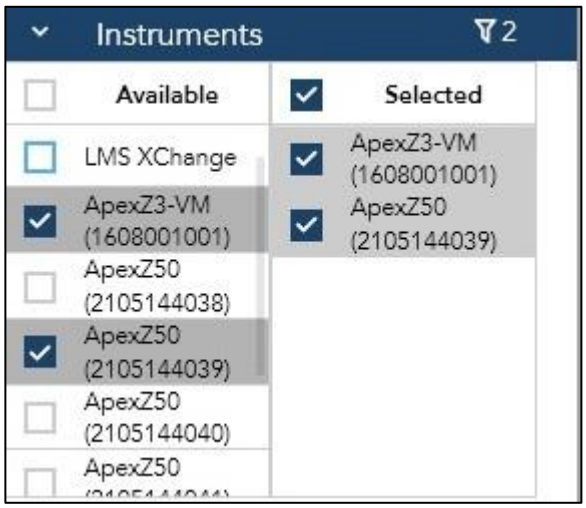

**Audit Log Date And Time Selection**

Users can manually enter a date and time into the window or click the button to bring up the calendar and time selection window.

Once the desired values are entered, the user must click on the Apply button at the bottom of the Data Filter to enact the filtering.

## Instruments Filter

Users can use the Instruments filter to select specific instruments to show in the Audit Log, and even can filter by events recorded directly by LMS XChange.




**Audit Log Instruments Filter**

Selecting a unit in the left column will add it to the right column. Once all desired Instruments are selected, the user must hit the Apply button at the bottom of the Data Filter window to enact the filtering.

## Config Files Filter

Users can use the Config Files filter to select results based on specific configuration files.


**Audit Log Config Files Filter**

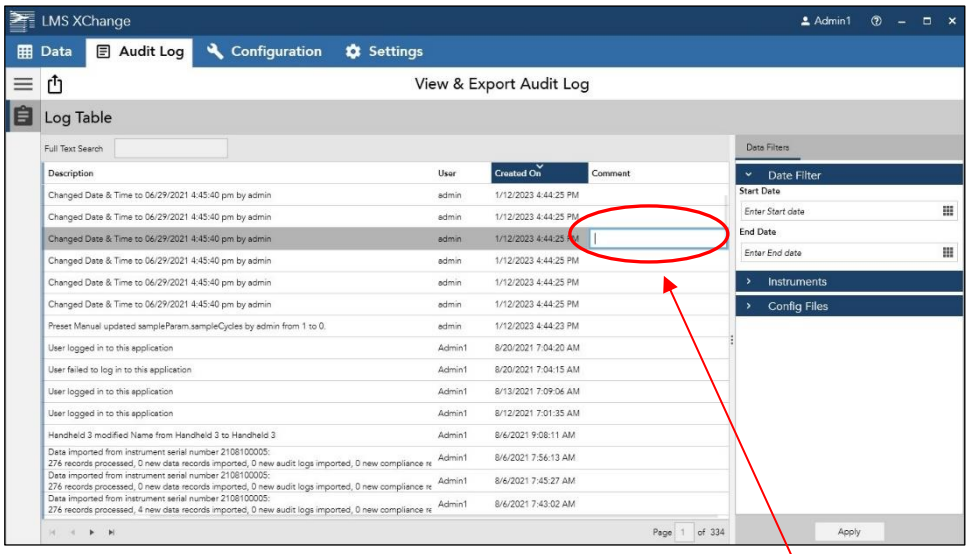
Selecting a Config File in the left column will add it to the right column. Once all desired selections are made, the user must hit the Apply button at the bottom of the Data Filter window to enact the filtering.

## Audit Log Comments

The Audit Log contains a column for Comments. This column allows for text input by the user by simply clicking within the Comment row and entering text. The Comment column will also display the comments added in an ApexZ audit log comments when data is imported from an ApexZ instrument.

**Note:** To customize an Audit Log export, use the Log Filters to select which Audit Log records are displayed, and hence, will be exported.

**Note:** When the user clicks export, all Audit Log records currently displayed on the Log Table will be exported.




**Audit Log Comment Column**

Entering text into the comment column will also generate another entry to the Audit Log showing the new comment value. This entry will not show up while the comment is being entered, users will have to switch screens within LMS XChange to refresh the list. This prevents the rows from jumping around while users are trying to enter information.

## Exporting Audit Log Records

Audit Log records can be exported to Microsoft Excel (*.xlsx), CSV (*.csv), or PDF (*.pdf) files.

Export Log Records by following these steps.

1. View the Log Table.
2. Click the Export Data Table button on the Toolbar.
3. On the Save As window that appears, use the navigation tools at the top of the dialog box to select the directory to save the file to, enter a file name, select the file type, and click Save.

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# Chapter 8 User Accounts

This chapter describes LMS XChange user accounts, user settings, user types, and permissions granted to each user type.

## User Account Types

There are three types of user permission levels in LMS XChange:

Operator
Power User
Administrator

**Warning:** Ensure that login information is kept secure and retrievable. Loss of login information will lead to a need to uninstall and reinstall the LMS XChange program.

Access to LMS XChange features varies by each user permission level.

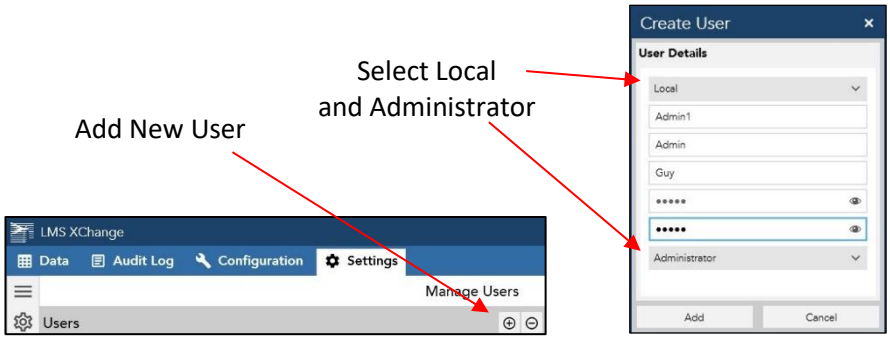
LMS XChange includes three default permission levels for user accounts: Operator, Power User, and Administrator.

Additional User Settings include enabling and disabling users, Active Directory, Secure Active Directory, auto logout time, maximum password ageing, lock user after 3 failed attempts, and password complexity requirements.

**Note:** By default, user accounts are not enabled and anyone with access to LMS XChange can run it.

To enable user accounts and require all users to log into LMS XChange, check the Enable Users checkbox on the User Setting section of the Users screen.

By default, Users are disabled and anyone with access to the LMS XChange program can run it. To enable User accounts, a Local Administrator account must first be created and logged in to. Once Users are enabled, login will be required to use the program.



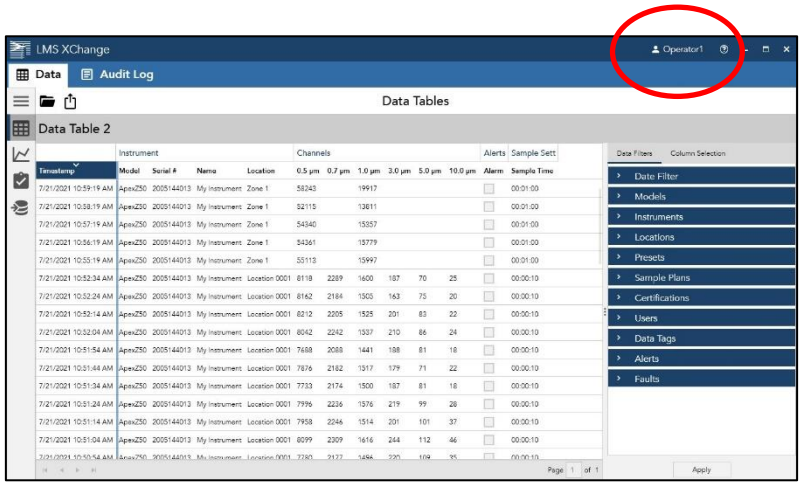

**Note:** All User accounts must have a username that is at least one character long, a first name, a last name, and password.

In addition, ‘admin’ and any version of it, such as ‘Admin’ or ‘ADMIN’, cannot be used as a user name for any user account.

Below are descriptions of the three types of LMS XChange users, Operator, Power User, and Administrator, and the features and permissions available to each type.

## Operator

Operator users have access to LMS XChange Data Tab and Audit Log Tab. All functions available on the Data Tab and Audit Log Tab, including importing data and exporting data and log records to Excel, CSV, and PDF files, are available to logged in Operator level users.




**Data Table with Operator1 Logged In**

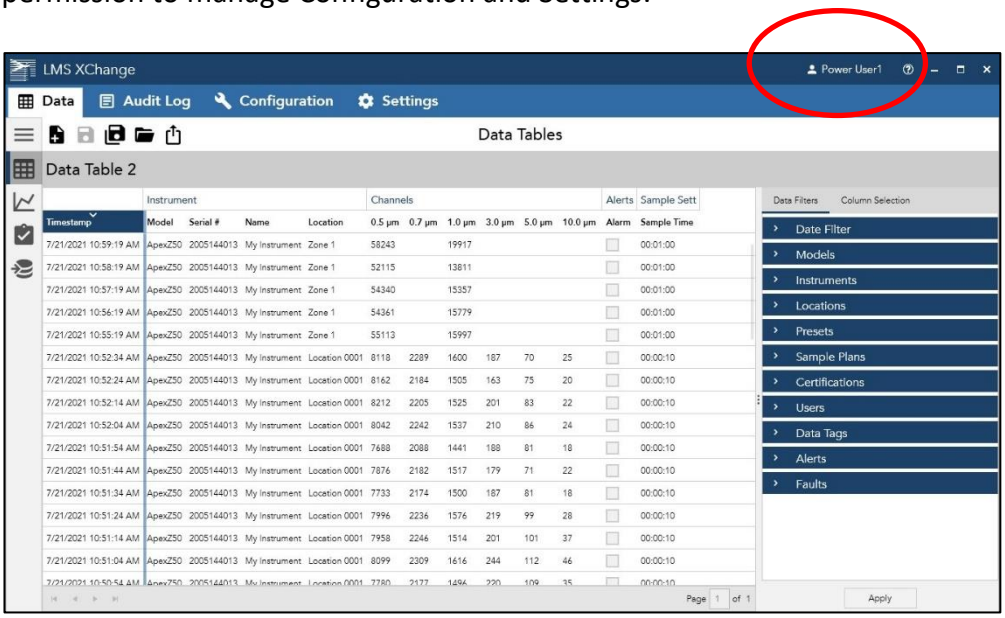
### *Operator Permissions*

LMS XChange "Operator" level user logins have the following permissions.

- Login to LMS XChange
- View Data Table
- View and Edit Graphs
- View and Create Compliance Reports
- View Audit Log records
- Import Data
    - From ApexZ ( the LMS XChange logged in user name must match a user name on the instrument).
    - From Solair, Handheld, and Vertex instruments
    - From .lsd, .lsdx, and .lsrx files
- Export Data & Audit log records
    - Export to an Excel (*.xlsx) file
    - Export to a CSV (*.csv) file
    - Export to a PDF (*.pdf) file

## Power User

LMS XChange Power Users have all the Operator level permissions plus permission to manage Configuration and Settings.




**Data Table Screen with Power User1 Logged In**

### *Power User Permissions*

LMS XChange "Power User" level users have the following permissions:

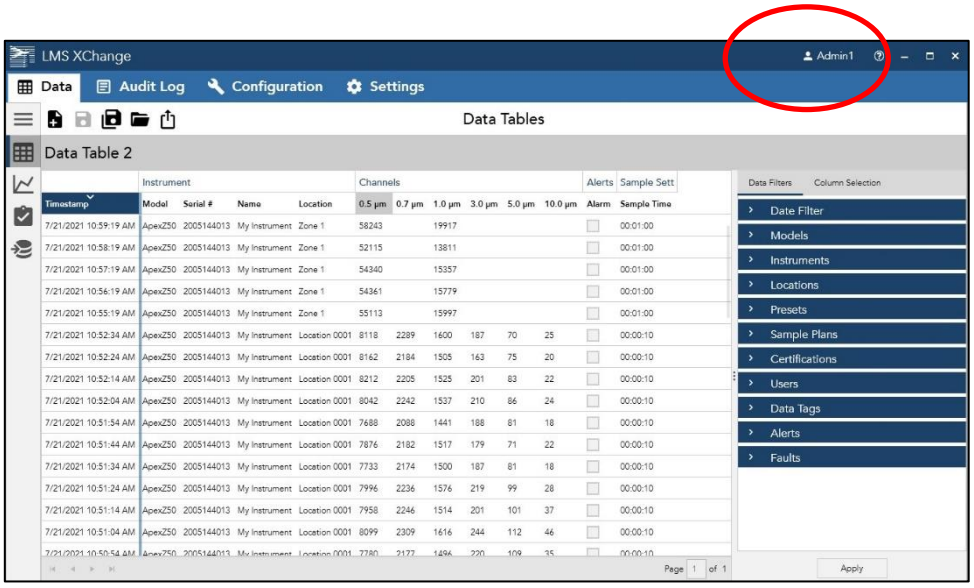
- All Operator Permissions (including viewing, importing, and exporting data and audit log records)

- Configuration Management
  - Edit configuration on connected instruments.
  - Save instrument configuration to a configuration file locally.
  - Create, edit, copy, and delete locally saved configuration files.
  - Load a configuration file onto one or more instruments.

- Settings Management
  - Application Settings
  - Report Customization
  - Database Import from LMS Express

## Administrator

LMS XChange Administrator level users have all Operator and Power User permissions plus the following Administrator level permissions.




**Administrator level User Admin1 Logged In**

### *Administrator Permissions*

LMS XChange "Administrator" level users have the following permissions and can access the following features.

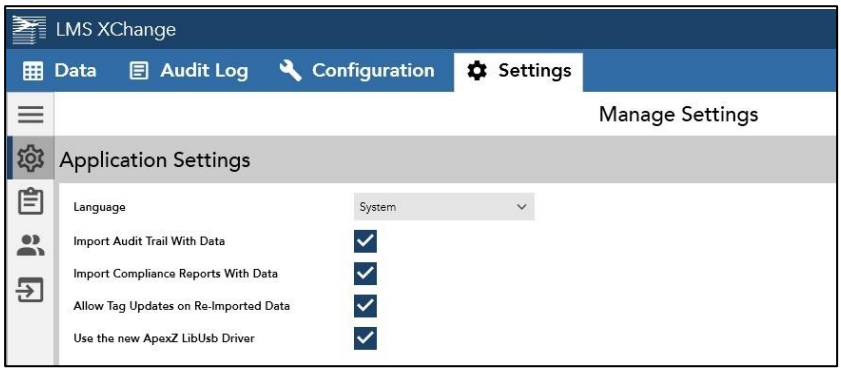
**Note:** No user level has permission to delete data or audit log records that have been imported into LMS XChange.

- All Power User permissions (including viewing, importing and exporting data and Audit log records, and managing configurations)
- User Accounts
  - Create new user accounts
  - Update existing user names and passwords
  - Delete user accounts
- User Settings
  - Enable/disable users
  - Set the Active Directory Domain name
  - Set the Auto-logout duration

# Chapter 9 Settings

LMS XChange Application and User settings are available on the Settings tab. The User settings screen will be available when Users are not enabled, but only to Administrator accounts when Users are enabled.

## Application Settings




LMS XChange application settings are located on the Settings tab, Application Settings screen. Available settings include:

**Language** Select language preference from the pull-down list.

### Import Audit Trail with Data

If checked, when Data records are imported, all available Audit Trail records will also automatically be imported.

### Import Compliance Reports with Data

If checked, when Data records are imported, all available Compliance Reports will also automatically be imported.

### Allow Tag Updates on Re-Imported Data

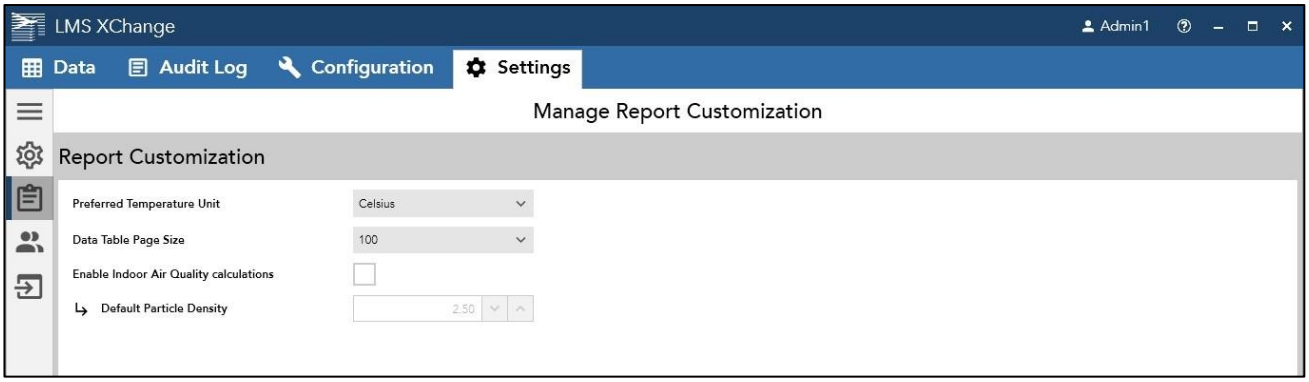
When checked, if tags on an instrument's data were updated after the data was imported into LMS XChange, the tags on the data saved in LMS XChange will be updated to the new tags if the data is re-imported.

### Use the new ApexZ Lib Usb Driver

When checked (enabled by default), this driver directly connects to ApexZ devices via USB, instead of the previous virtual serial port connection. This option can significantly improve reliability and download speed. Disable only if experiencing compatibility issues.

## Report Customization Settings

LMS XChange Report settings are found on the Settings Tab, Report Customization Settings screen.




**Report Customization Screen**

Available settings include:

### Preferred Temperature Unit

Select the unit of measure for temperature data from the list of available temperature units of measure. Options are Celsius or Fahrenheit.

### Data Table Page Size

Select the number of records to display on a single page of the Data Table and Audit Log. Lowering this value can improve LMS XChange performance.

### Enable Indoor Air Quality Calculations

When checked, these Indoor Air Quality Data Columns will be added when viewing imported data:

- Ug/m³, showing Particle Mass for an individual channel
- PM, showing Particle Mass for all smaller channels
- TPM, showing Total Particle Mass for all channels

### Default Particle Density

When Indoor Air Quality Calculations are enabled, use this configured particle density value in Indoor Air Quality calculations, when it cannot be read from the instrument upon data import into XChange.

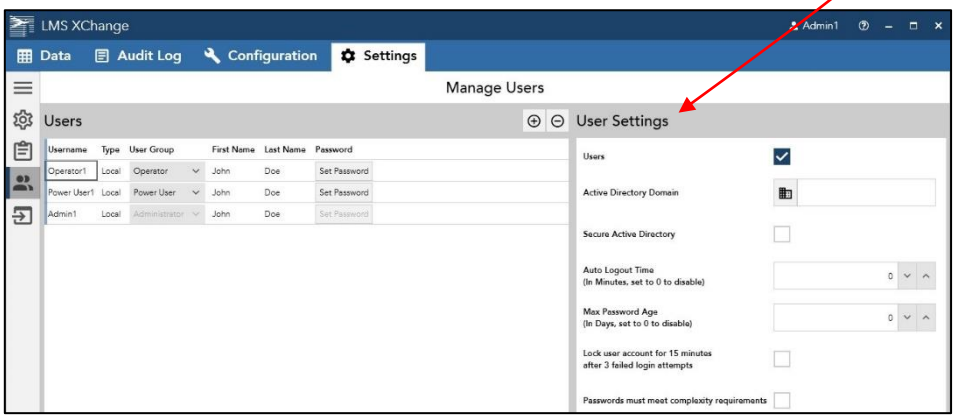
## User Settings

The User Settings screen is available when Users are not enabled. When Users are enabled, only Administrator accounts can access it. An Administrator account is required in order to enable Users.

**Warning:** Ensure that login information is kept secure and retrievable. Loss of login information will lead to a need to uninstall and reinstall the LMS XChange program.

The following LMS XChange settings can be configured to affect all User accounts.

To set LMS XChange User settings, click on the Settings tab and then the Users button. A section titled, "User Settings" appears on the right side of the screen.




**Settings to Manage Users**

**Note:** To track when LMS XChange is started or stopped, Enable Users. When Users are enabled LMS XChange logs a record in the Audit Log each time a user logs in or out of LMS XChange.

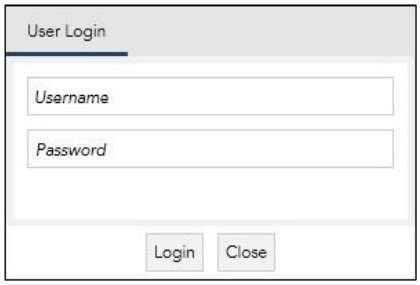
## Users

**Note:** Create at least one Local Administrator account before checking "Enable Users" because LMS XChange requires a Local Administrator account to log in to change the Enable Users setting.

By default, LMS XChange has Users Disabled and any operator can start LMS XChange without logging in.

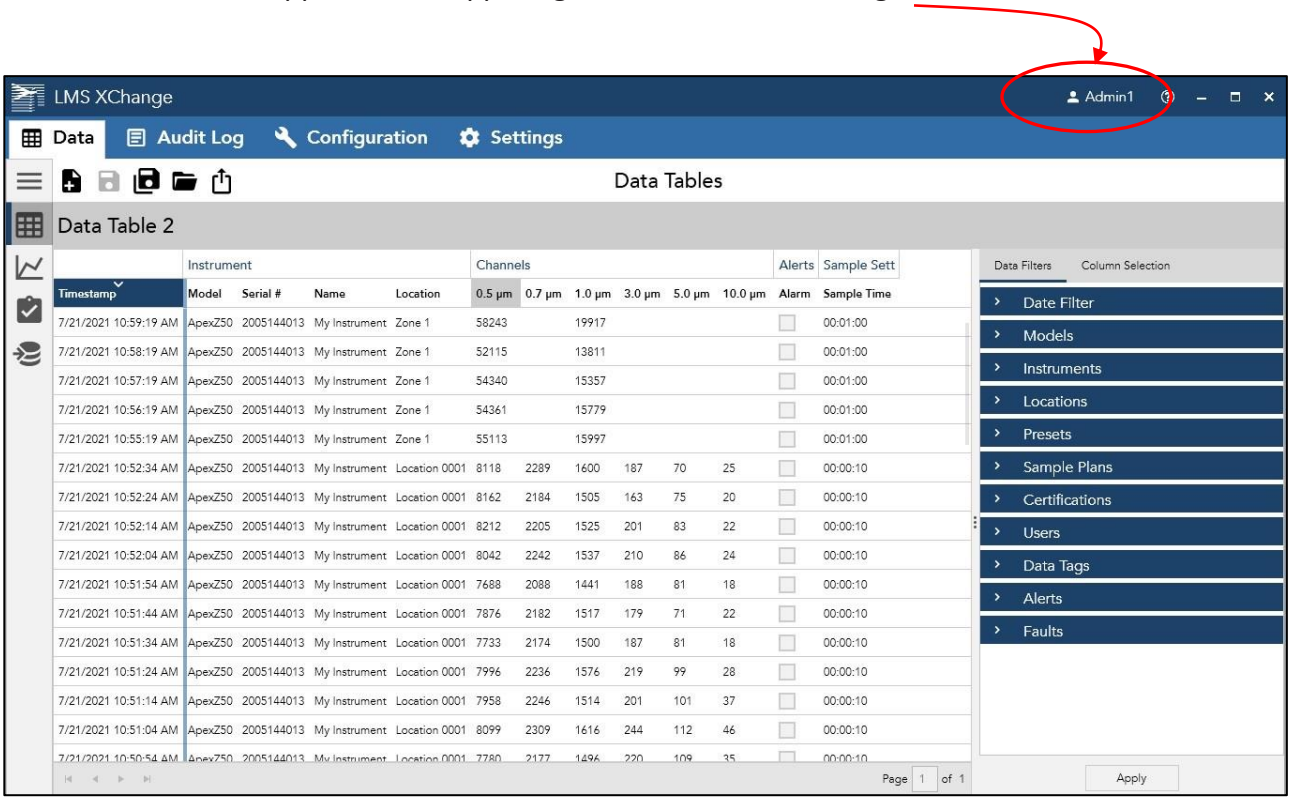
To require users to always login to start LMS XChange, check the enable Users checkbox. To allow users to start LMX XChange without logging in, un-check this field.

When Users have been enabled, the Login window will appear each time LMS XChange is started. Users will be required to login to operate LMS XChange.




**LMS XChange Login window**

Once a user has successfully logged in, the name of the user will appear in the upper right corner of LMS XChange title bar.

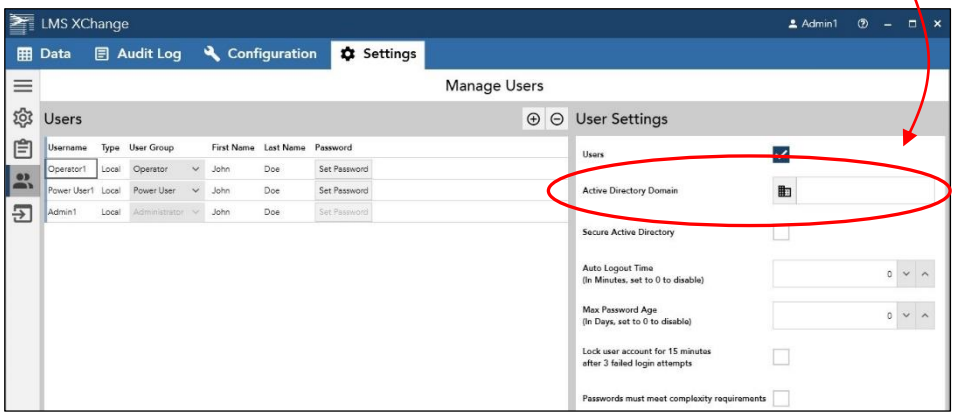



**Username displayed on LMS XChange title bar**

## Active Directory Domain

User logins and passwords can be controlled by a connected Active Directory Domain. If the computer running LMS XChange is connected to an Active Directory Domain then it will be auto discovered and appear here.

If no Active Directory has been set up on the computer running LMS XChange then this entry will be blank and you can enter your Active Directory Domain name here.




**User Settings for Active Directory**

## Secure Active Directory

Enable Secure Active Directory to connect to AD/LDAP server via SSL/TLS over port 636. Ask your IT department if your Active Directory domain supports this.

## Auto Logout Time

**Note:** the Auto Log out timer is not suspended while data and audit log records are imported.

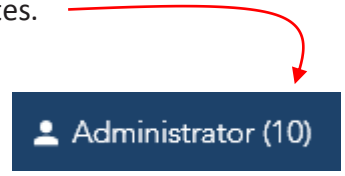
**Auto Logout Time**: To have a user automatically logged out of LMS XChange after a period of non-use, enter an Auto Logout Time in number of minutes by clicking on the up arrow or down arrow increment buttons.

To disable Auto Logout Time, enter zero (0).

**Note:** When LMS XChange auto- logs out a user, the user logout is recorded in the Audit Log,

The amount of time (in minutes) before LMS XChange will log out the current user for non-use is displayed next to the user's name on the title bar of LMS XChange. Durations range from 1 to 99,999 minutes.

The default is 10 minutes.




**Username and remaining** (time) **before auto logout**

## Max Password Age

If Max Password Age (number of days) is set greater than zero (0), then LMS Xchange will force a user to change their password after that specified number of days since that user's last login. Note: Max Password Age does not apply to Active Domain user logins.

## Lock user account for 15 minutes

If a user attempts to login 3 times consecutively with an incorrect password, the account will be locked for 15 minutes. After the lock time, the user can attempt to login again.

## Passwords must meet complexity requirements

Passwords must be at least 6 characters in length and contain characters from three of the following four categories:

English uppercase characters (A through Z)

English lowercase characters (a through z)

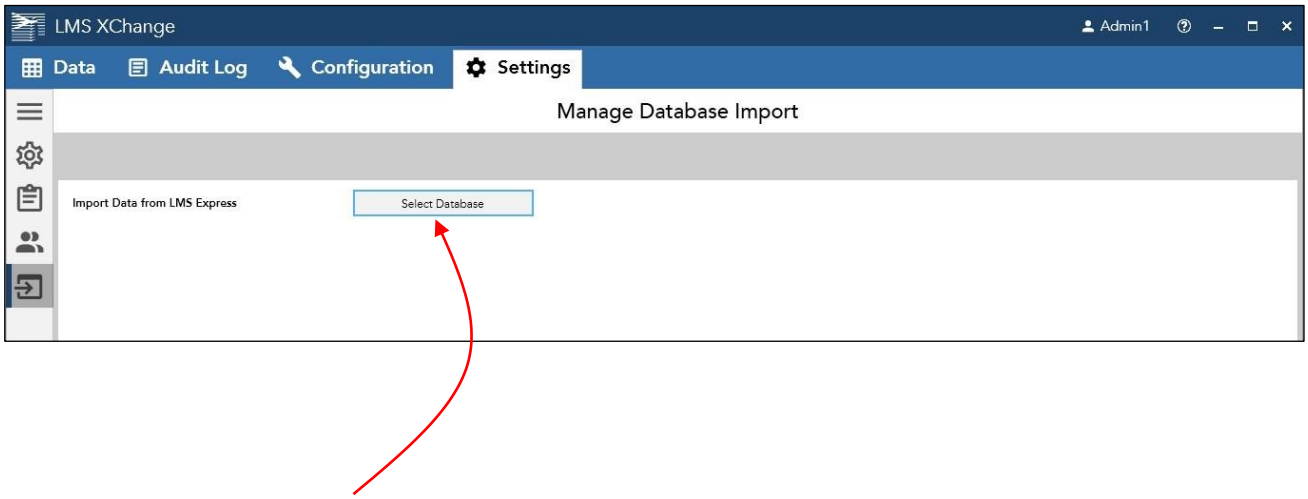
Base 10 digits (0 through 9)

Non-alphabetic characters (for example, !, $, #, %)

*Note: This does not apply to Active Directory users.*

## Import Express Database

LMS XChange can also import all data from an LMS Express database. Use the below feature on the Settings, Import Database screen to accomplish this.




*Import Database from LMS Express*

Select the LMS Express .db3 database, via its file, and import its data.

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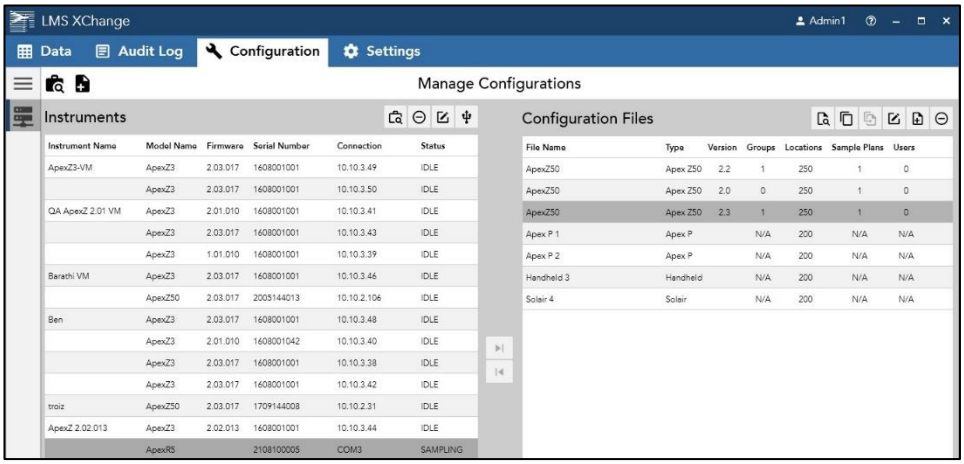
# Chapter 10 Instrument Configuration

The Configuration tab allows Administrator users to create, edit, or send ApexZ configurations to and from ApexZ instruments, as well as create, edit, delete, and/or send locally saved configuration files for the ApexZ. Users can also connect to Apex Remote instruments (this includes ApexR and ApexRXP units) via Smart Cable to manage their Configurations. LMS XChange can also be used to create Location Lists to be used for data downloaded from other units.

## Configuration Tab

When started, LMS XChange scans the computer's serial ports, USB ports, and available networks for connected instruments. All auto-detected Instruments appear in the Instruments list on the Configuration tab.

**Note:** LMS Xchange can import data and save configuration from ApexZ v1.0, but cannot directly edit ApexZ v1.0 configuration, or restore a v1.0 configuration.

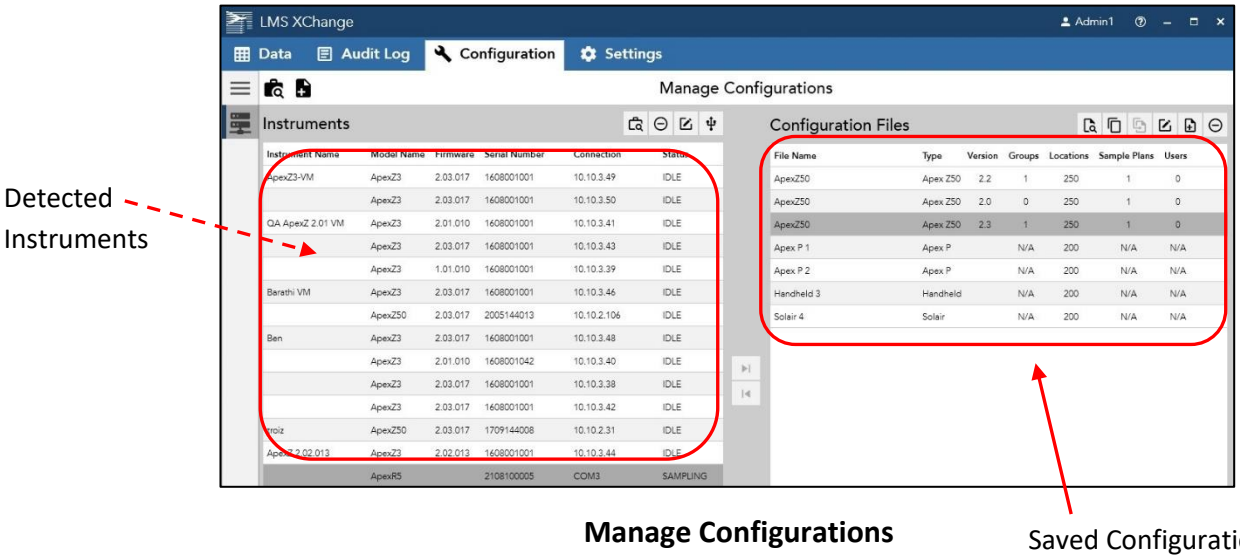



**Manage Configurations**

The user can click on an instrument in the list to select it. The user can then double-click on the row, or click the Edit Configuration button above the list, to directly connect to the instrument and open and display the instrument's current configuration.

A list of locally saved configuration files is displayed on the right side of the screen. Users can click on a saved configuration file to select it, and after it is selected and highlighted, click the Edit Configuration button to open the configuration file for editing.

Editing a saved configuration file is like editing the configuration of a connected Instrument. The rest of this chapter, however, will cover editing the configuration of a connected Instrument using LMS XChange. First the ApexZ will be covered, then the Apex Remote.




**Manage Configurations**

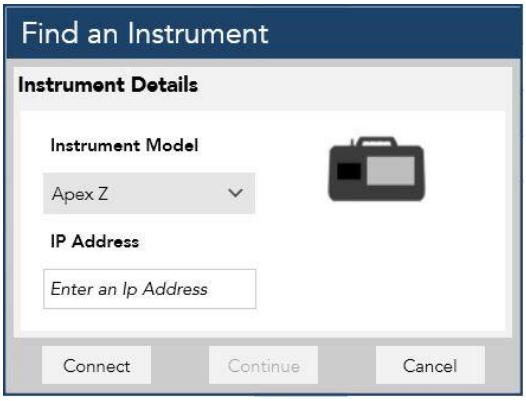
Instruments detected are displayed on the Instruments list on the left. Configuration files saved locally are displayed under the Configuration Files list on the right side of the Manage Configurations screen. This includes ApexZ configuration files and Location Lists for other instruments.

## Find instrument

If an instrument is connected to the network but is not auto-detected and listed on the Instrument list when LMS XChange is started, the user may locate it by clicking the Find Instrument button and entering information to connect to the instrument. This includes instruments connected to the operating computer via Serial to USB cable.

Click on the Find Instrument button to locate an ApexZ Instrument by IP Address.

**Note:** LMS XChange can auto discover instruments. However, if an ApexZ or another instrument is not auto-discovered, Find Instrument can be used to locate the desired instrument.



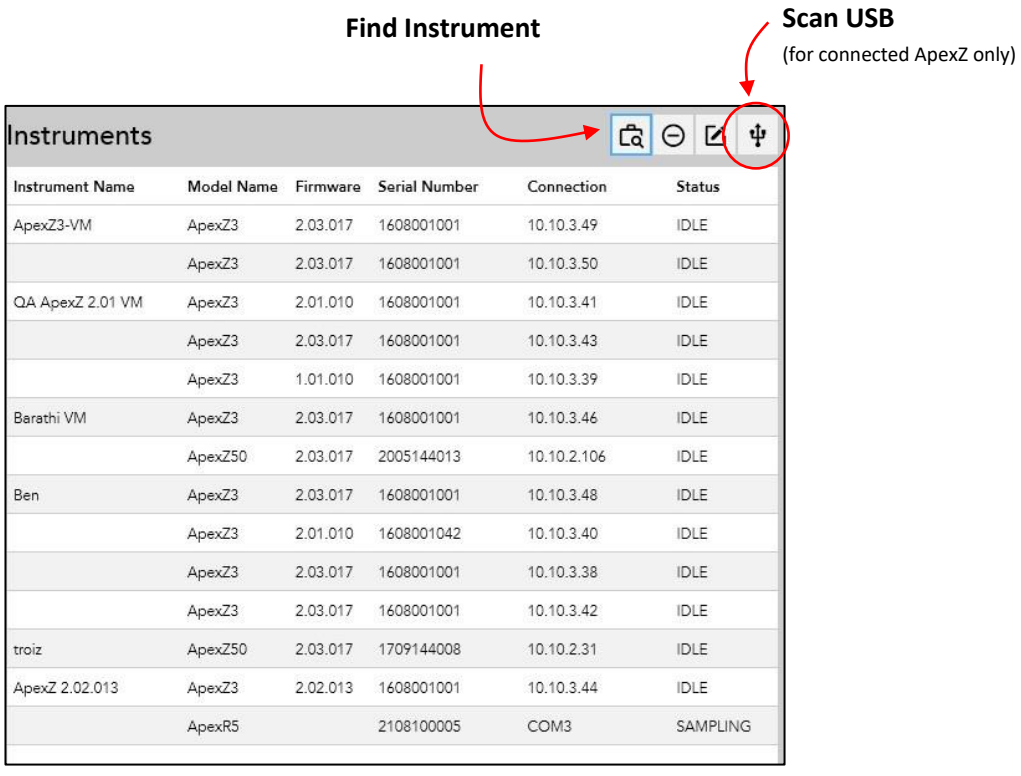

**Find ApexZ by IP address**

Enter the ApexZ Instrument IP address and click on the Connect button. If the ApexZ is successfully found via the entered IP Address, the ApexZ will be added to the list of connected instruments.

If you are connected to the ApexZ with the Serial to USB cable then you can press the “Scan USB” button to find the connected ApexZ instrument.

**Note:** If you want to find an ApexP, Solair, Handheld, Vertex, or another instrument, after you click the Find Instrument button, select the Instrument’s model from the Instrument Model pulldown list. The fields LMS XChange needs to locate the instrument will be displayed.

For more details, see the Find Instrument section in the Import Data chapter of this manual.




**Connected Instrument List**

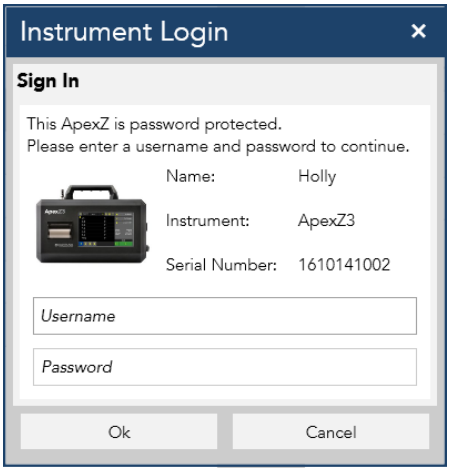
## Edit Instrument Configuration

To Edit an ApexZ or Apex Remote's instrument configuration, select the instrument from the list of connected Instruments and double click on the row, or click the Edit Configuration button.

**NOTE:** To edit an Apex Remote's instrument configuration, the unit must be connected to the operating computer via the SmartCable.

**Note:** If Users are enabled on the ApexZ instrument, a username and password will be required to login to the Apex Z to connect to it and access its configuration.

If Users are enabled on the ApexZ, the following window appears and the user will be required to login to the ApexZ with the account name and password of an Administrator level user on the ApexZ.




**Instrument Login Window.**

**Note:** LMS Xchange can import data and download configuration from ApexZ v1.0 but cannot be used to edit ApexZ v1.0 configuration directly.

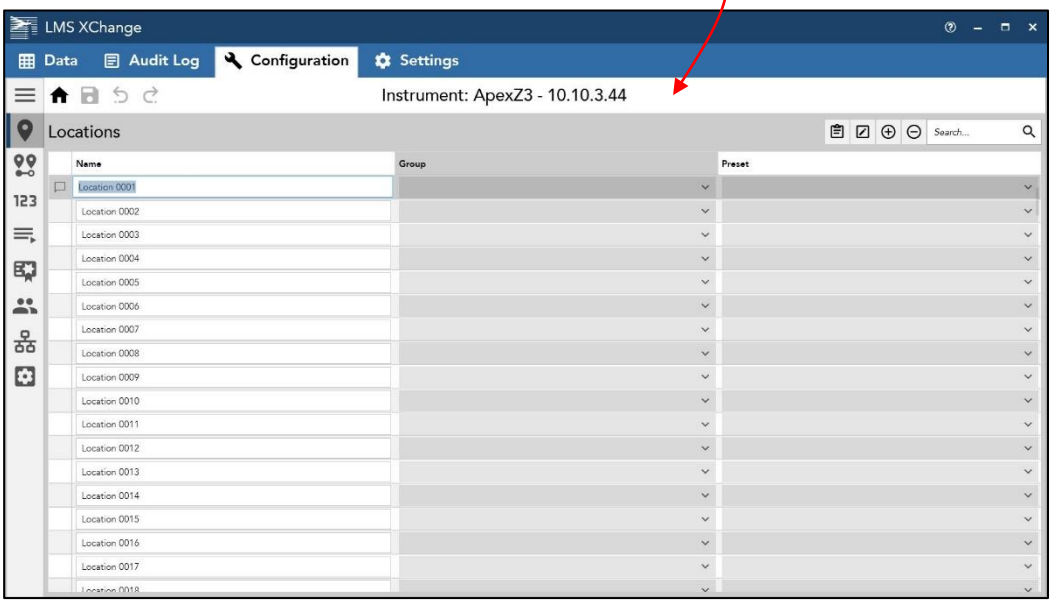
Enter the username and password of an Admin user on the ApexZ and click the Ok button.

The LMS XChange Configuration screen displays. The name or Model Name and the IP Address (if connected via IP) of the unit appears on the white title bar below the Configuration Tab, preceded by the label, "Configuration:".

On the left side of the Configuration screen, the left toolbar updates to show the configuration areas available for editing. This chapter will show the screens for ApexZ first and following those will be the screens for the Apex Remote.

## ApexZ Instrument Configuration Screen

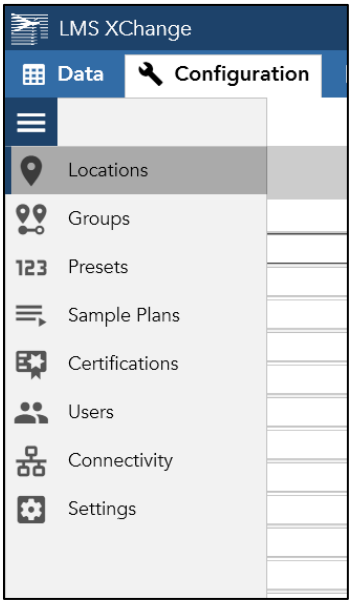
Current Instrument Name or Model & IP Address




**Instrument Configuration Screen for ApexZ**

Clicking on the Display Menu button will expand the left toolbar to show the names of the menus available.

**Display Menu**

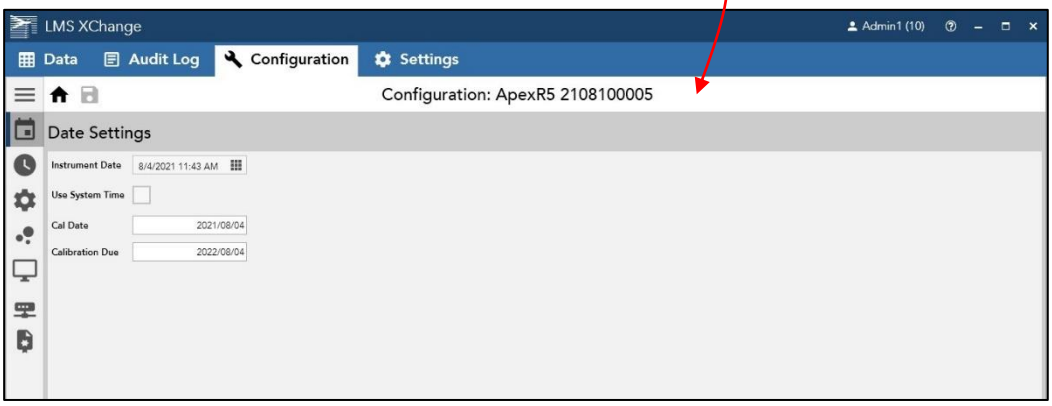



**Edit Configuration Tool Bar**

## Apex Remote Instrument Configuration Screen

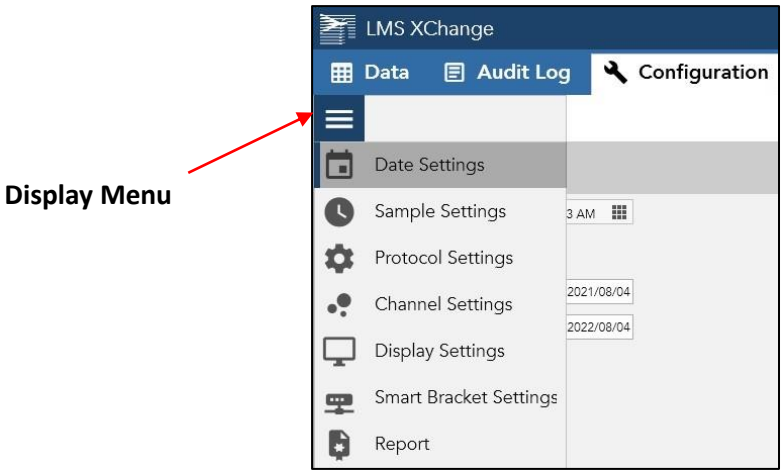
The Apex Remote Configuration screens will display customer settings, allow for editing of most of those settings, and provide a printable Customer Report showing a wide variety of data. The Apex Remote must be connected to the operating computer via a Smart Cable in order to manage the configuration.

Current Instrument Name or Model & IP Address




**Instrument Configuration Screen for Apex Remote**

Clicking on the Display Menu button will expand the left toolbar to show the names of the menus available.




**Edit Configuration Tool Bar**

## ApexZ Configuration - Locations

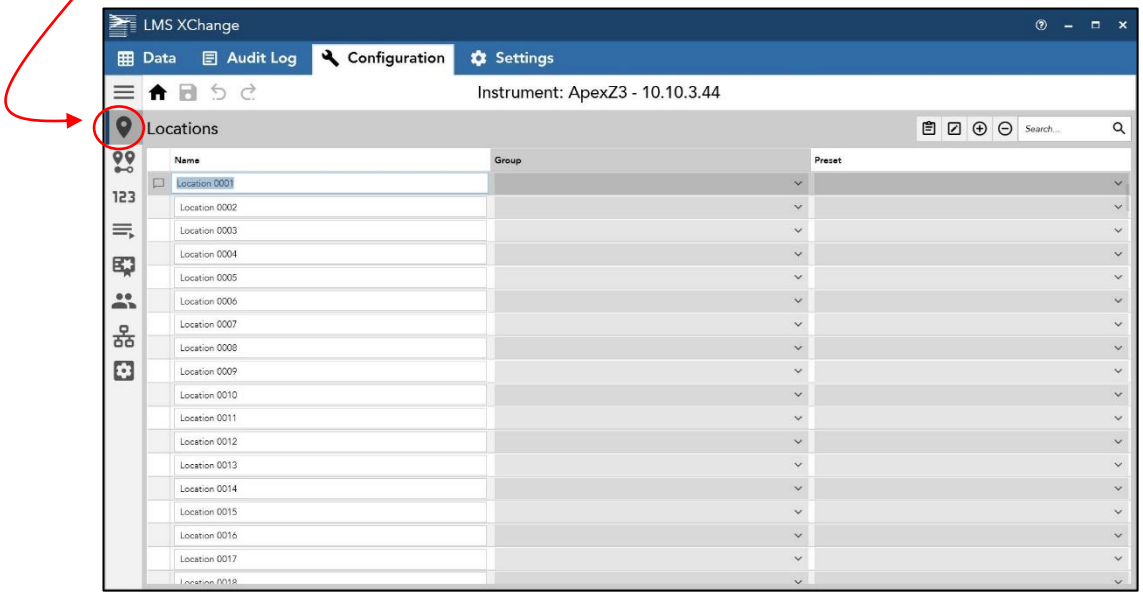
The ApexZ has the capacity to store up to 2500 location names. By default only the first 250 location names have been named, as “Location 0001”, “Location 0002” and up to “Location 0250”. When importing a configuration, only named Locations will be imported.

Users can use LMS XChange to add additional location names.

New location names will default to the next sequential location #, for example “Location 0251”.

Location names can be edited/renamed or deleted using LMS XChange.

**Locations button**

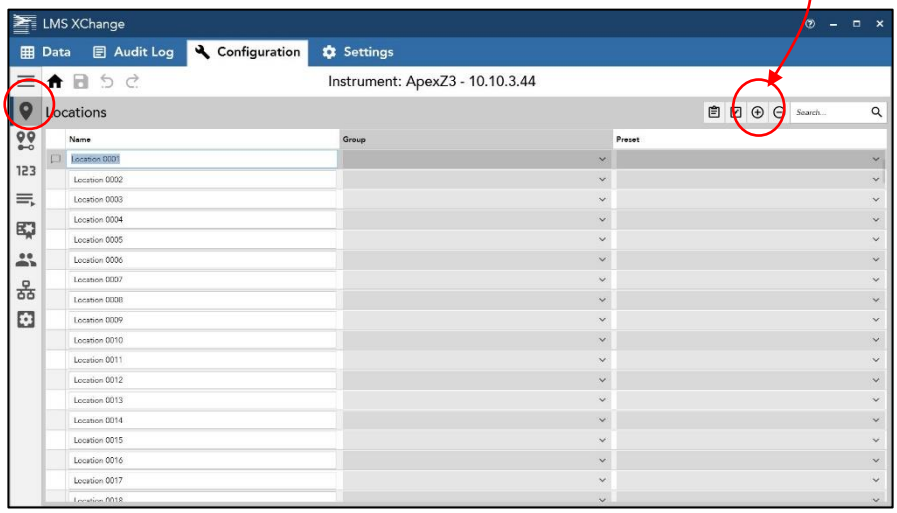



**Instrument Configuration Window – Locations**

## Add or Edit Locations

To add a new location to an instrument, click on the Locations button on the Configuration Tab left toolbar, and then click on the "+" button on the upper right side of the Configuration screen.

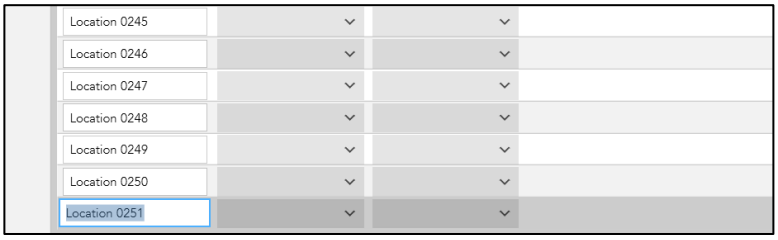
**Locations button**




**Add new Location**

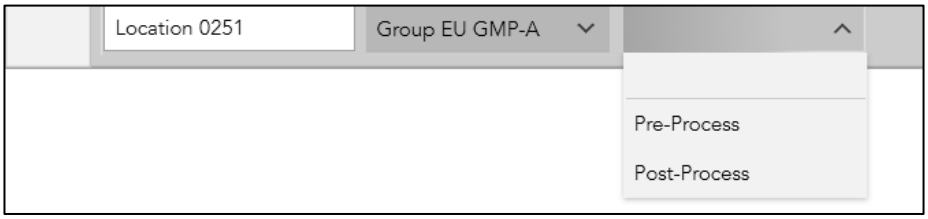
LMS XChange will add the new Location at the bottom of the list of Locations.

By default, the new location name will be "Location ####" where #### = the total locations saved +1.



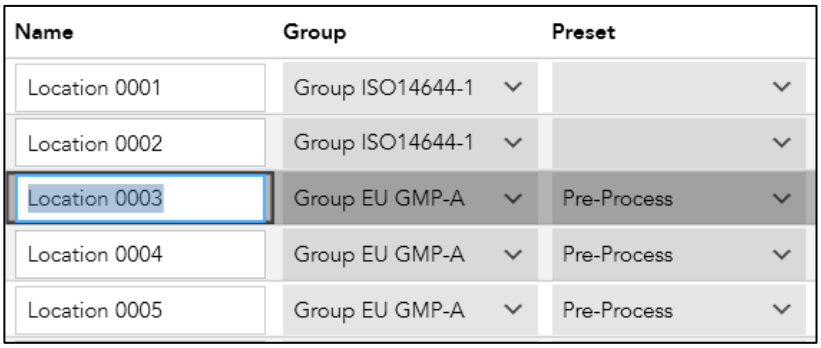

**Add New Location's name.**

The user can edit the new, default Location name. The user can also select a Group or Preset, if applicable, for this new Location, by using the pull-down lists available on the Group Name and Preset Name fields.




**Select Group & Preset for Location.**

Similarly, the user can edit the name of a pre-existing Location by clicking the mouse in the desired Location's name field and then changing the Location's name. The user can also edit a Location's Group and/or Preset names by selecting the Location row, and then selecting a Group Name or Preset Name, from the appropriate pull-down list.

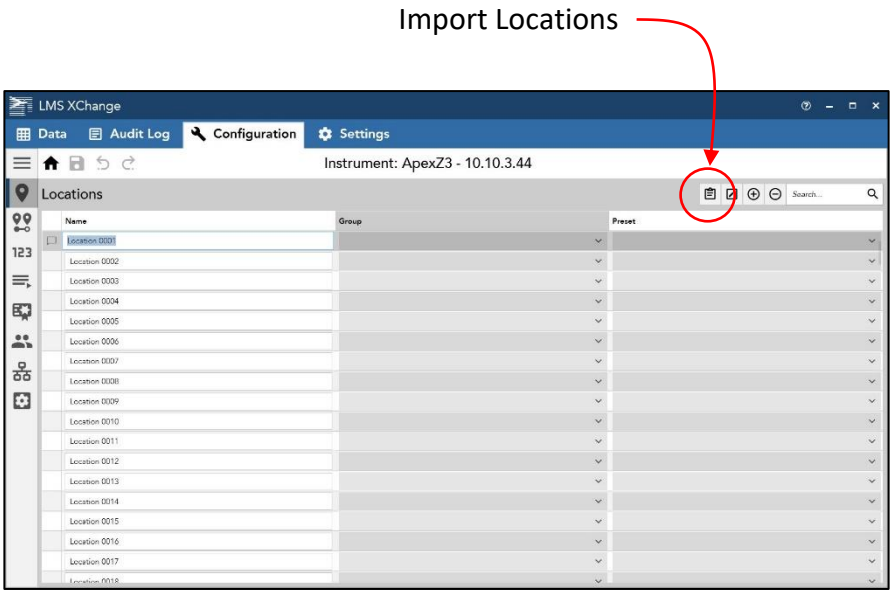



**Edit an Existing Location**

## Import Location Names

Alternatively, Location names can be imported into the Instrument or Configuration file by using the Import Locations button.

**Note:** Location Names must start with a letter or number.




**Import Locations**

While the Locations screen is displayed, click the Import Locations button.

The following Import Location Names window displays.


**Import Location Names Window**

On the Import Location Names window, paste a list of one or more location names in the text box on the window, and click the OK button.

New Location names will be created for each location name that does not exist.

## ApexZ Configuration - Groups

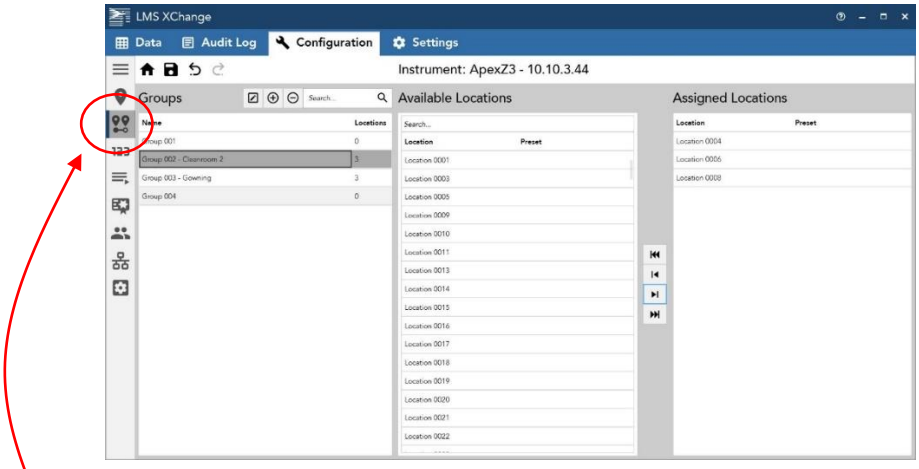
The ApexZ can support up to 2500 locations. ApexZ and LMS XChange Groups are a collection of Locations.

Assigning Locations to different Groups allows users to filter through the long list of all Locations quickly to find a specific Location or specific subset of Locations.

**Note:** LMS XChange automatically converts ApexZ v1.0 Rooms into v2.0 Groups.

Users can create up to 250 Groups and assign one or more Locations to each Group.

Multiple Locations may be assigned to a Group but each Location may only be assigned to one Group. Users can customize Group names to help easily identify rooms, or sets of instruments, etc., as needed.




**Configuration – Groups of Locations**

### View Groups

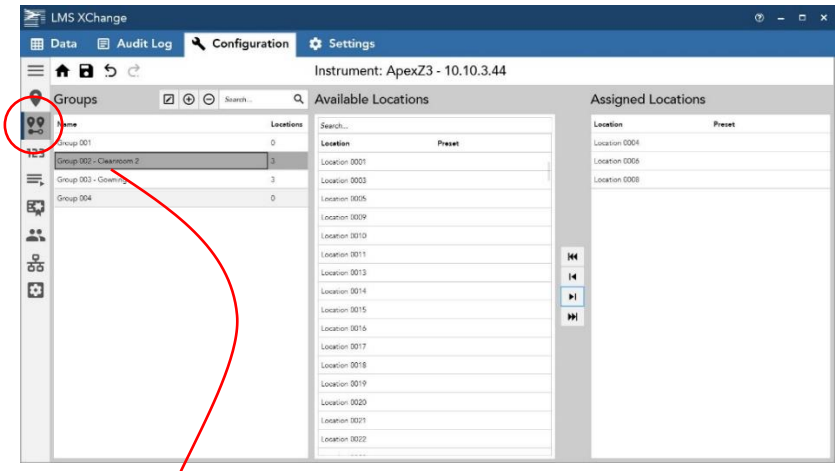
Click on the Groups button to view the Groups screen.

## Add a new Group

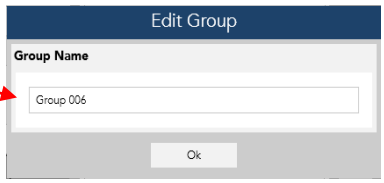
To add a new Group, click the "+" button. A new Group name will be added to the list of Groups. Because all Groups must always include at least one Location, by default the next un-assigned Location will be assigned to the newly created Group. Users can edit Location assigned to the Group.

## Name the Group

Double-click on the Group name to view the Edit Group popup window.

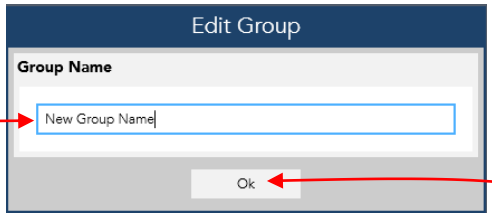



**Groups and Locations screen**




**Edit Group popup window**

Edit the Group name by typing over the default Group name.




**Edit an Existing Group**

Click the OK button to save the edited Group name.

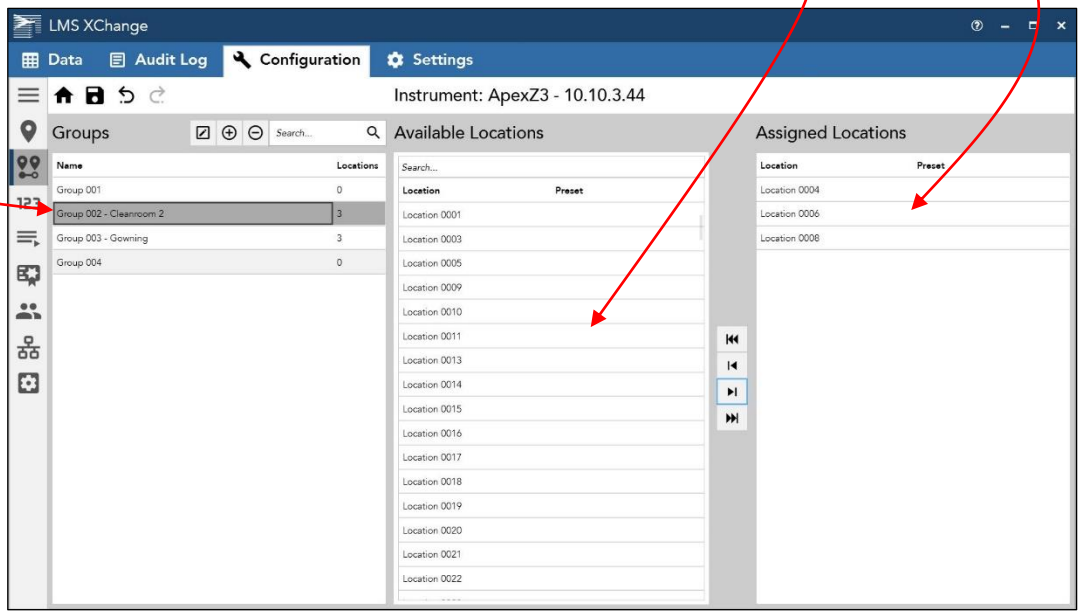
## Assigning Locations to Groups

Each Group must always be assigned at least one Location. By default, when a Group is first created, the next available, unassigned Location will be initially assigned to the new Group.

Select a Group name.

Locations that are assigned to the current Group are displayed in the Assigned Locations list on the right side of the Groups screen.

Locations that are not currently assigned to any Group appear in the Available Locations list in the middle of the Groups screen.




**A selected Group and its assigned Locations**

Users can assign and un-assign one or more Locations to the currently selected Group by using the following buttons and the Assigned Locations and Available Locations Lists on the Groups tab.

### Assign All

Clicking the “Assign All” button will move all the Locations listed in the Available Locations list to the current Assigned Locations list.

### Assign One or More Locations

Select one or more Locations in the Available Locations List and then click “Assign One or More” to move the highlighted location(s) to the current Assigned Locations list.

### Remove One or More Assigned Locations

Select one or more Locations in the Assigned Locations List and click the “Remove One or More Assigned Locations” to un-assign the selected Location(s) and move them back to the Available Locations list.

### Remove All

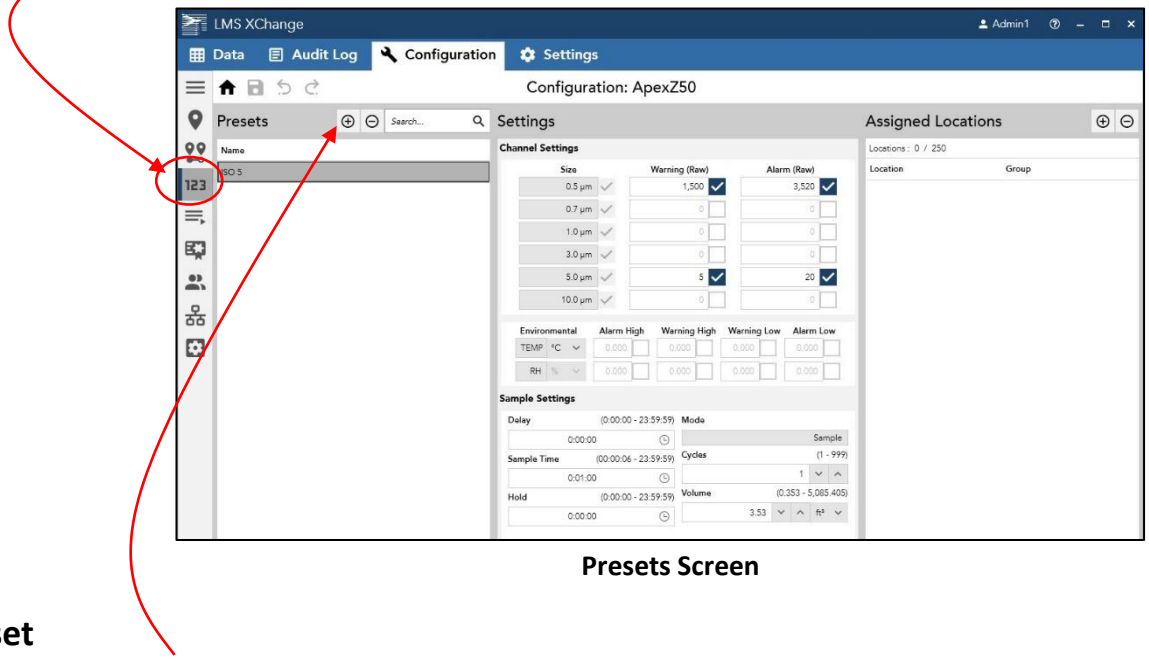
Clicking the “Remove All” button will un-assign all Locations from the Assigned Locations list and move them to the Available Locations list.

Note: Because each Group must always have at least one assigned Location, “Remove All” will always leave one Location, i.e. the first Location, assigned to the Group.

## ApexZ Configuration - Presets


LMS XChange can save specific sample settings as Presets. Presets include saved values for sample time, hold time, delay time, number of cycles, particle size channels, warning and alarm limits. Locations can be assigned Preset settings, so that each time a sample is run at that location, the Preset sample settings are used for each sample recorded at that Location. Presets can be added, edited or deleted through LMS XChange on the Configuration – Presets page.

Click on the Preset button to display the Preset screen.




**Presets Screen**

### Add a Preset

To add a new Preset, click on the "+" button. The new Preset will be added to the list of Presets, and all its initial values will be default values.

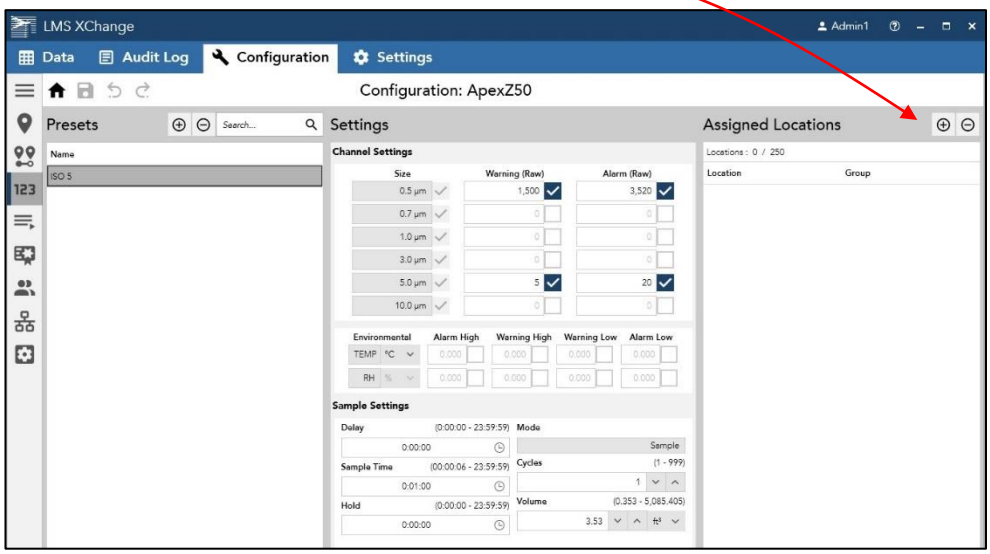
### Edit a Preset

Click on a Preset name in the list of Presets to select and highlight it. The Preset screen updates to display the selected Preset saved Channel Settings, Sample Settings and Assigned Locations.

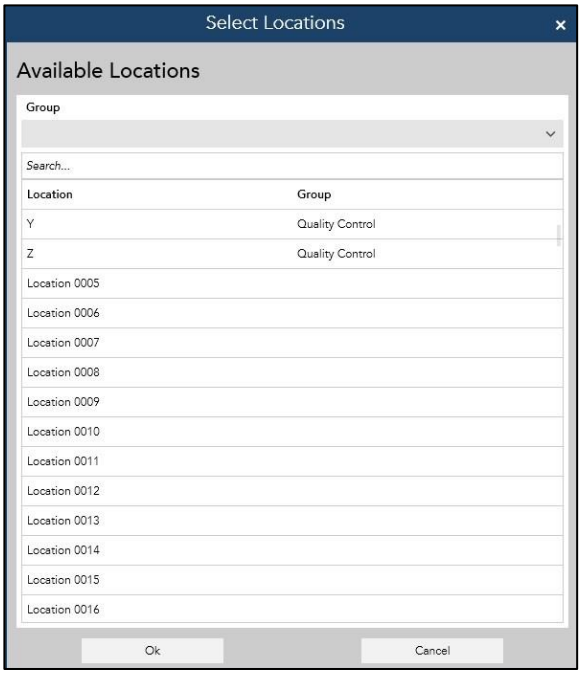
Click on the Save button to save the new Preset settings.

## Assign Locations to Presets

Click on the Add Assigned Locations button to display the Select Locations screen.




**Configuration - Presets**




**Available and Assigned Locations**

Users can assign Locations to the currently selected Preset by selecting them in the Select Locations Window then pressing the OK button.

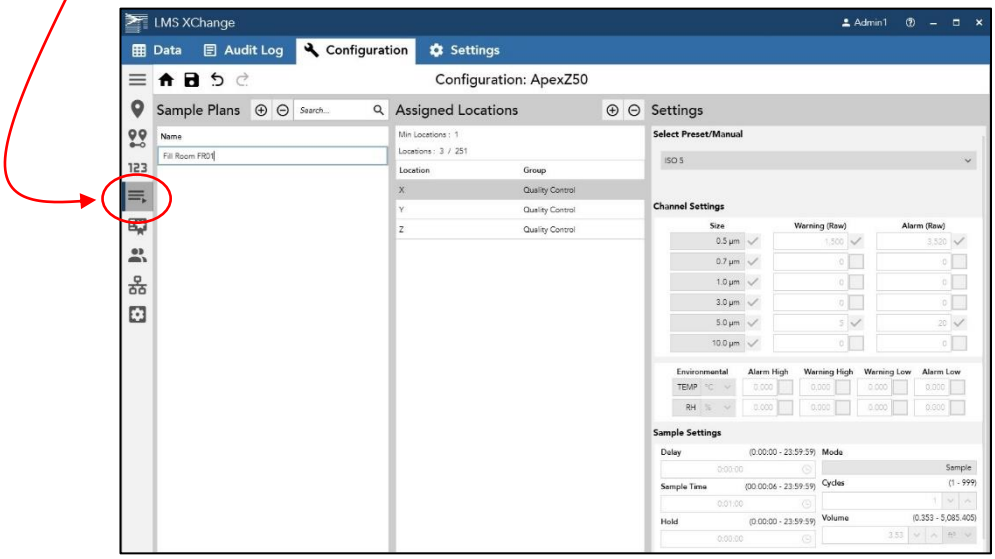
## ApexZ Configuration - Sample Plans

LMS XChange can be used to create and edit Sample Plans. Sample Plans are a list of locations assigned custom or preset sample settings.

Note: Recipes (supported in previous versions of ApexZ instruments) are a collection of locations with the same sample settings used at each location. Sample Plans have replaced Recipes. Sample Plans allow different sample settings at each location, either via a Preset or by manually configuring each sample at each location.

### To View Sample Plans

To view the Sample Plan screen, click on the Sample Plans button on the Configuration tab left toolbar.



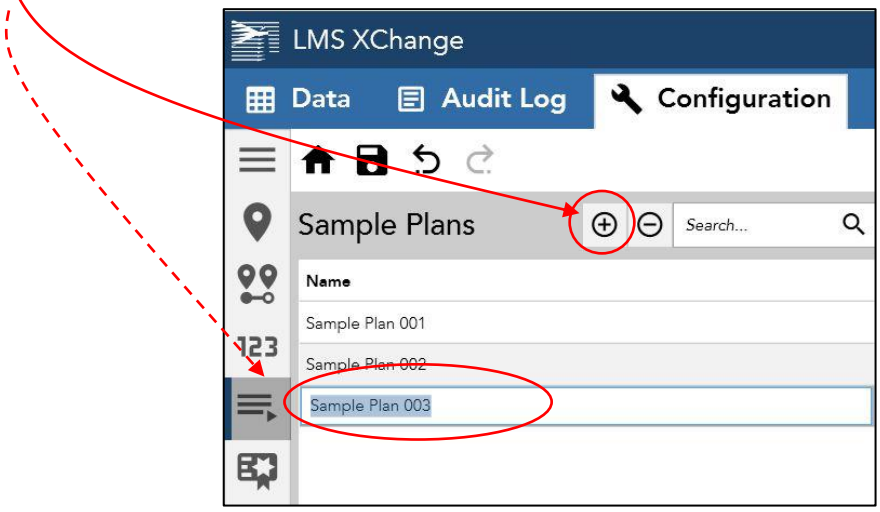

**Sample Plans**

### Edit a Sample Plan

To Edit a Sample Plan, click on the Sample Plan name. The Sample Plan name will highlight, indicating it has been selected, and the Assigned Locations and Settings sections of the screen update to display the selected Sample Plan's settings. The user can edit the Assigned Locations and Sample Settings (either manual or preset) for each location assigned to the selected Sample Plan.

## Add a New Sample Plan

To Add a new Sample Plan, click the "+" button above the list of existing Sample Plans. A new Sample Plan, with default values, will be added to the list of Sample Plans. The user can change the default name of the Sample Plan as well as its default sample settings and default assigned Location.




**Create a new Sample Plan**

## Assigning Locations to New Sample Plans

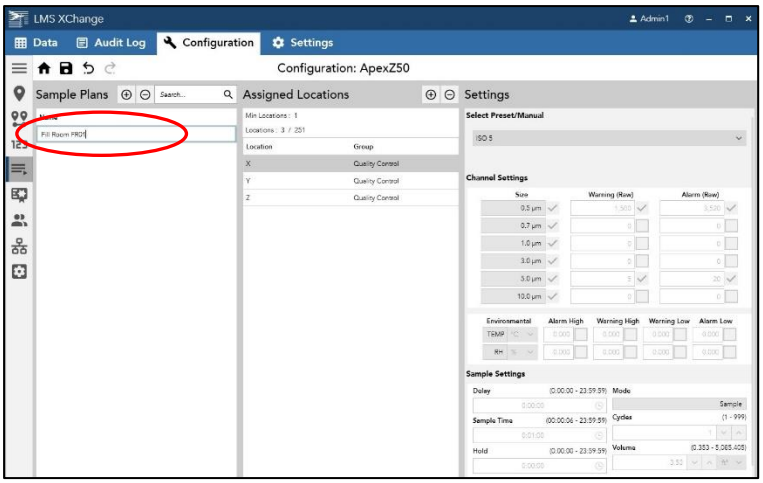
To assign Locations to Sample Plans, please see the section on assigning Locations to Presets, Sample Plans, and Certifications.

## Save Changes

Click the Save Changes button on the toolbar above the list of Sample Plans to save the new Sample Plan and its assigned locations and sample settings.

## Edit an Existing Sample Plan

Add edit a Sample Plan, click on the Sample Plan's name to highlight it and display its Assigned Locations and Settings. Edit the settings and or Assigned Locations, and click the Save Changes button.

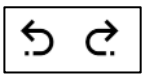



**Edit an Existing Sample Plan**

## Assigning Locations to Sample Plans

To assign Locations to Sample Plans, please see the section on assigning Locations to Presets, Sample Plans, and Certifications.

After entering, selecting or modifying the Sample Plan, click on the Save Changes button save the changes. Configuration changes are not saved and applied to the Instrument until the Save Changes button is clicked.



To un-do, or re-do, the most recent change, one at a time, click on the un-do and re-do buttons next to the save button above the list of Sample Plan names.

## Remove a Sample Plan

To delete a Sample Plan, click on the Sample Plan name, it will highlight to indicate that it has been selected, then click the Remove a Sample Plan button.

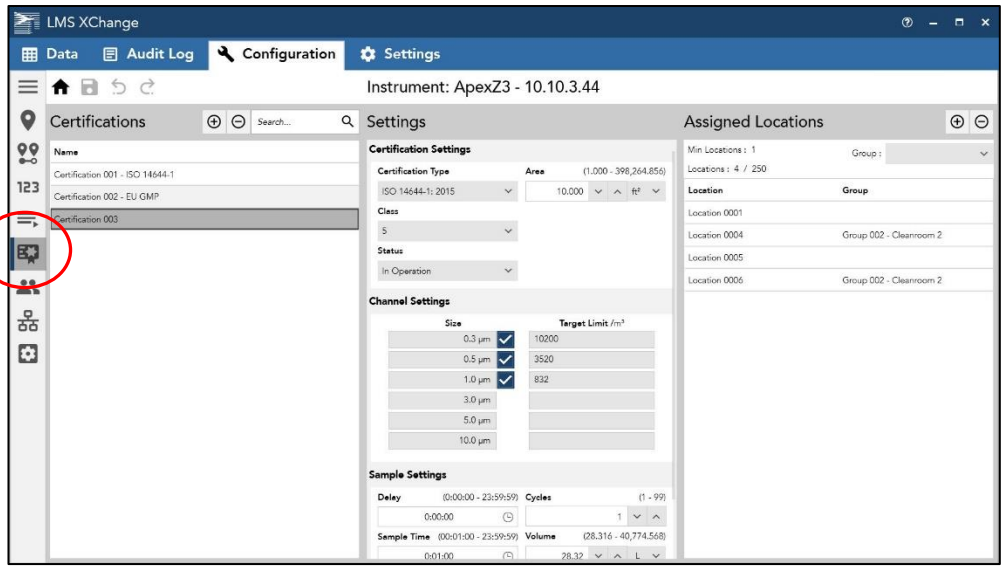
## ApexZ Configuration - Certifications

LMS XChange can be used to create and edit Certification Samples.

To view, add a new, or to edit an existing Certification, and/or the Locations assigned to a given Certification, click on the Certification button on the Configuration Tab's left toolbar.

**Note:** Sample Plans allow particle count target limits to be set by the user for both warning and alarm thresholds.

Certifications will display a single target limit per channel size. Target limits are fixed and cannot be changed by the user.




**Certifications – Settings – Assigned Locations**

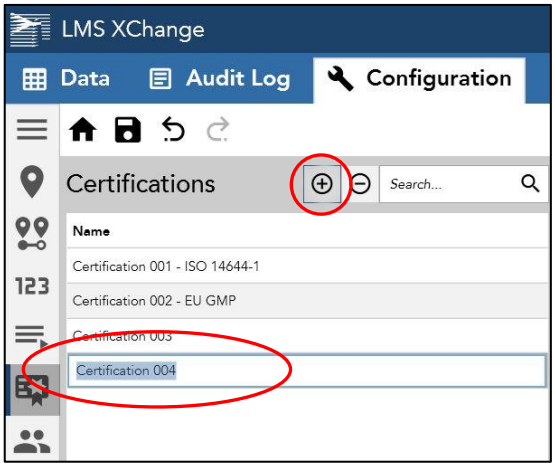
### View Certifications

To view Certifications, click on the Certification button on the Configuration tab left toolbar.

### Add a new Certification

**Note:** LMS XChange automatically converts ApexZ v1.0 Recipes into ApexZ v2.4 Sample Plans and Certifications.

To add a new Certification, click the "+" button above the list of existing Certifications. A new certification, with default values, will be added to the list of Certifications. The user can change the default name of the Certification, as well as its default settings.

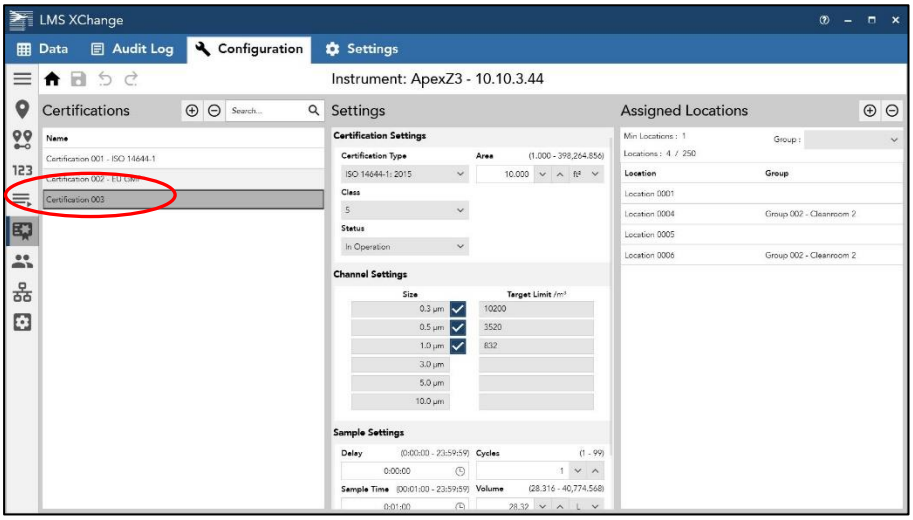



**Create a new Certification**

Clicking the Save Changes button on the toolbar above the list of Certification will save the new Certification and its values.

## Edit an existing Certification

To Edit an existing Certification, click on the Certification name in the list of Certifications to select it, the Settings and Assigned Locations sections of the screen will update with the Certification ‘s information.




**Edit an Existing Certification**

**Note:** Configuration changes are not applied on the instrument until the Save button is clicked.

To un-do or re-do the most recent change(s) one at a time, click on the un-do and re-do buttons next to the save button above the list of Certification names.

After entering, selecting or modifying the Certification's Settings and/or Assigned locations, click on the Save Changes button above the list of Certification names to save changes to the Certification.

## Assigning Locations to Certifications

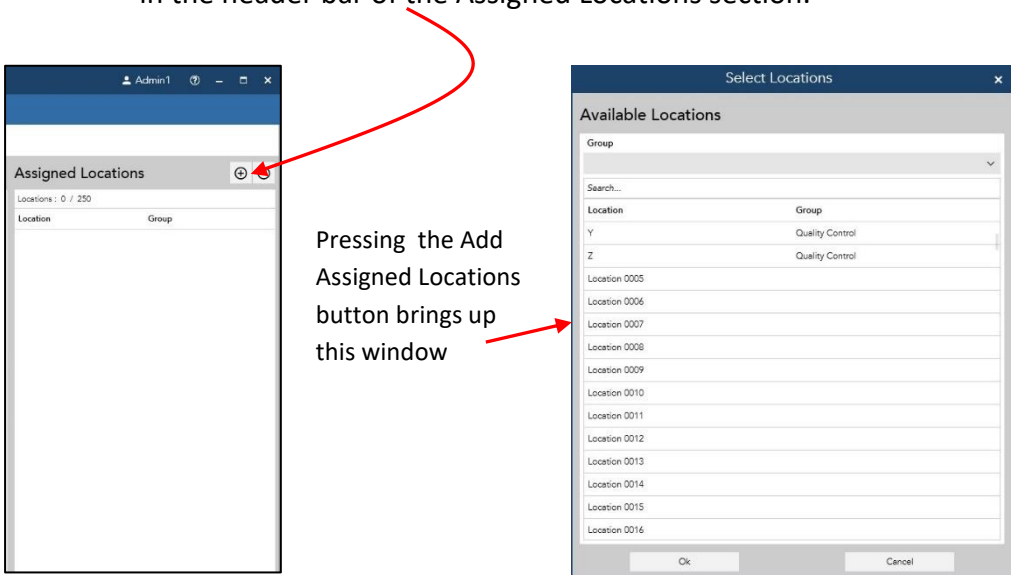
To assign Locations to Certifications, please see the following section that covers how to assign Locations to Presets, Sample Plans, and /or Certifications.

## Assigning Locations to Presets, Sample Plans and Certifications

Assigned Locations

Locations that are assigned to the current Preset, Sample Plan, or Certification are displayed in the Assigned Locations list on the right side of the corresponding tab.

Locations that are not currently assigned to any Preset, Sample Plan, or Certification are accessed by pressing the “Add Assigned Locations” button in the header bar of the Assigned Locations section.




**Locations Assigned** **Locations Available**

On the Select Locations window, users add or remove Locations assigned to the selected Preset, Sample Plan, or Certification by selecting them on the list and then pressing the OK button at the bottom of the window.

To remove an Assigned Location from a Preset, Sample Plan, or Certification, select the Location(s) in the Assigned Locations list and click the Remove Assigned Locations (“-“) button

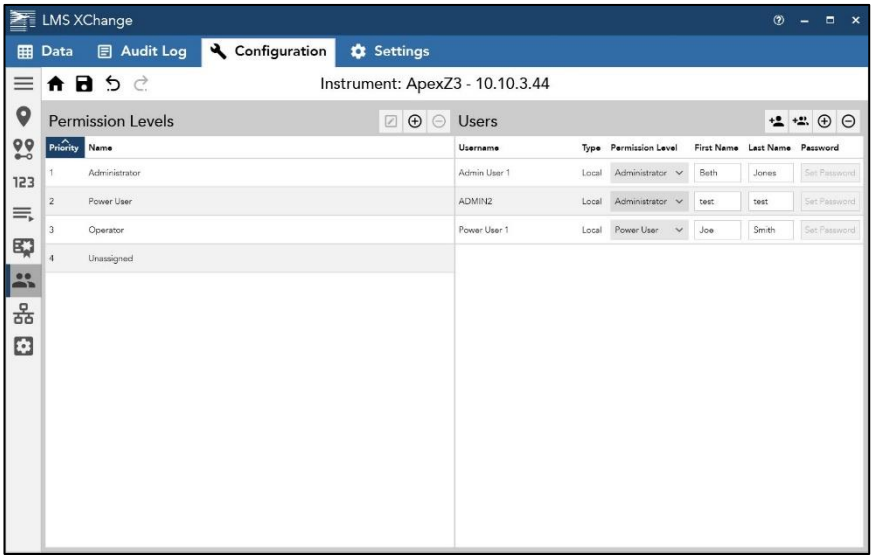
## ApexZ Configuration - Users

To add a new user account to the Instrument, or to edit an existing user account for the current Instrument, click on the Users button on the Configuration Tab's left toolbar. The User tab will display, showing the user accounts, and permission levels that currently exist on the instrument.

**Note:** Only a logged in Administrator can edit a User's Group level.

A logged in User or Power User level can change their own first/last name and password.

A logged in User or Power User cannot change his/her User Group level.




**Instrument Users & Permission Levels**

For ApexZ there are three default user types available on the Instrument, and on the Instrument's Users tab in LMS XChange.

Operator
Power User
Administrator

However, in addition, for ApexZ instruments, custom Permission Levels can be created.

For more details about ApexZ User accounts and Permission Levels, please see the ApexZ Operators Manual.

## ApexZ Permission Levels

The left side of the Users configuration screen for ApexZ contains a list of all the default and custom Permission Levels defined for the ApexZ. A toolbar above the list contains buttons for the following features.

### *Add New Permission Level*

To add a new Permission Level on the Instrument, click the “+” button on the left side of the screen, above the list of existing Permission Levels for the Instrument.

### *Edit Permission Level*

To edit an existing permission Level on the ApexZ, select the Permission Level’s row and then click the Edit Permission Level button.

### *Delete Permission Level*

To delete a permission Level from the ApexZ, select the Permission Level’s row and then click the Delete Permission Level button.

## Instrument User Accounts

The right side of the Instrument Configuration screen for ApexZ contains a list of the existing User Accounts on the ApexZ. A toolbar above the list contains buttons for the following features.

### *Add New Instrument User Account*

To add a new user to the Instrument, click the "+" button on the right side of the tab, above the list of existing User Accounts for the Instrument.

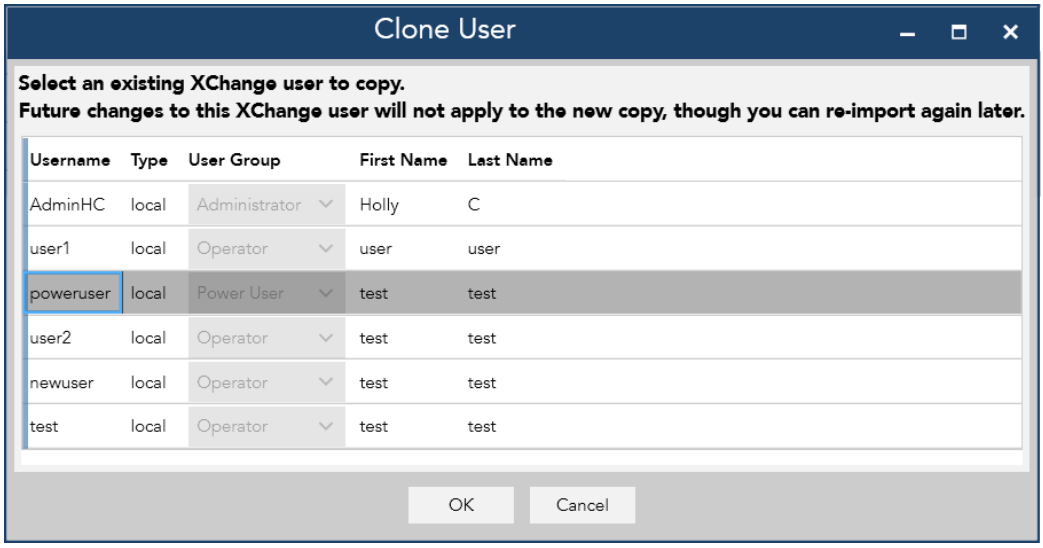
### *Delete Instrument User Account*

To delete existing User(s) from the Instrument, select the Users' row(s) and then click the "-"button on the right side of the tab, above the list of existing User Accounts on the Instrument.

### *Copy Single App User*

To add an LMS XChange user account to the Instrument's configuration, click the "Copy Single App User" button.

A list of all LMS XChange User accounts is displayed. Select one Username and click OK to add that User Account to the Instrument's configuration.




**Copy Single App User**

## *Copy All App Users*

To add all current LMS XChange user accounts to the Instrument's configuration, click the "Copy All App Users" button.

The following message appears. Click "Yes" to add all LMS XChange user accounts to the Instrument's configuration, or, click "No" to cancel copying users.

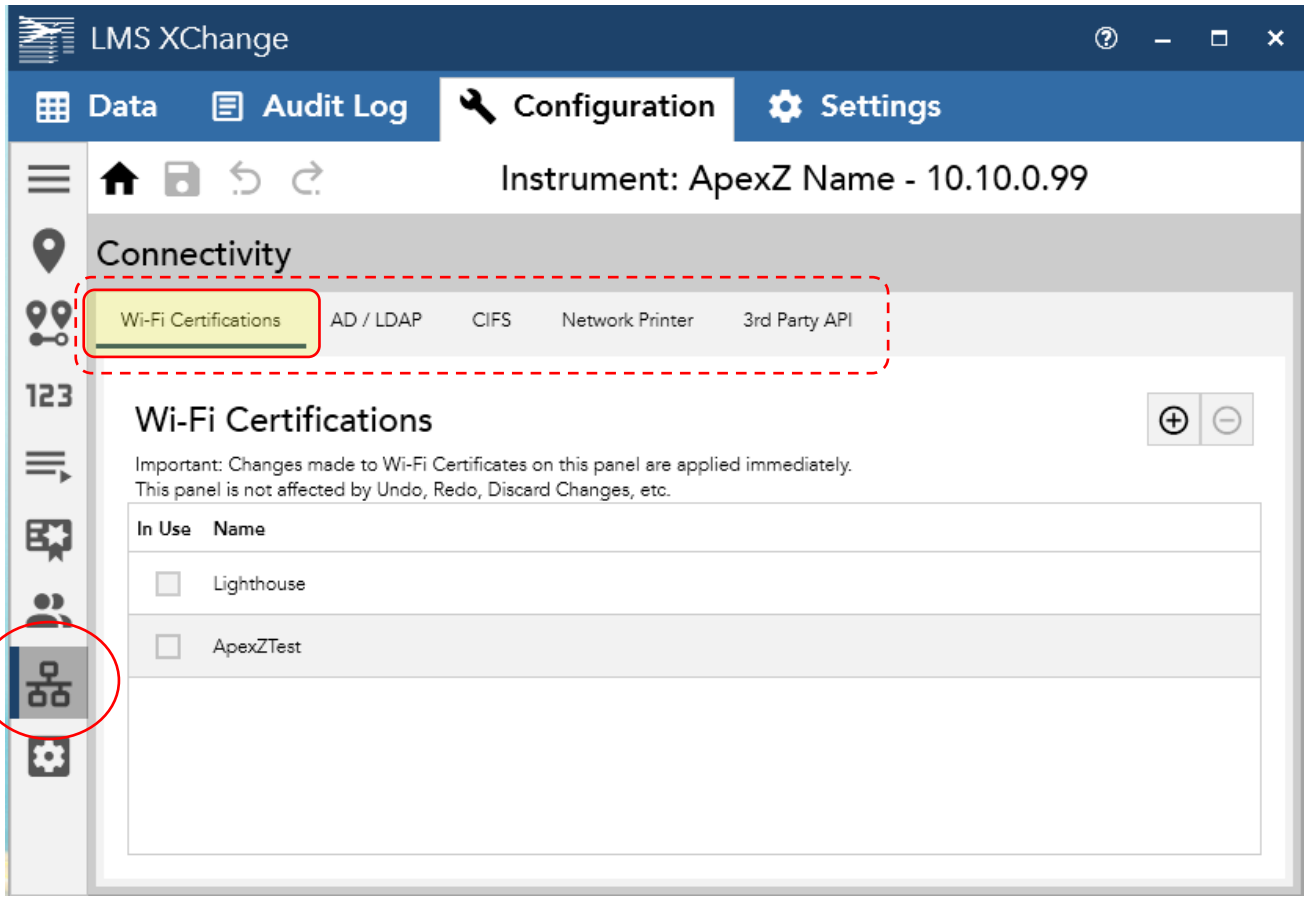

**Copy All App Users**

If an LMS XChange user account has the same name as an account already existing on the Instrument, the user will be prompted to choose if they wish to overwrite the existing Instrument User account, or not.

Blank Page

## ApexZ Configuration - Connectivity

To set or adjust the Instrument's Connectivity settings, click on the Connectivity button on the Configuration Tab's left toolbar.




**Instrument Connectivity Tab**

From the Connectivity tab users can view and update:

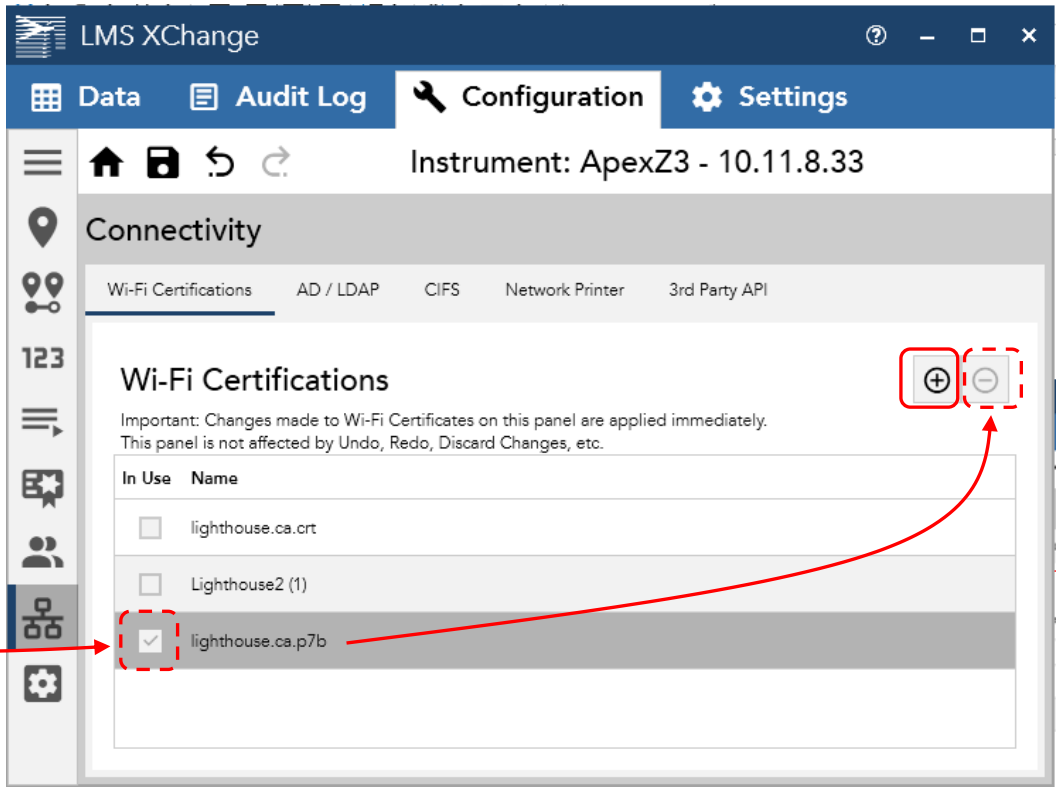
- **Wi-Fi Certifications**
- **AD/LDAP** (Active Directory/Lightweight Directory Access Protocol)
- **CIFS** (Common Internet File System)
- **Network Printer**
- **3rd Party API**

# Wi-Fi Certifications

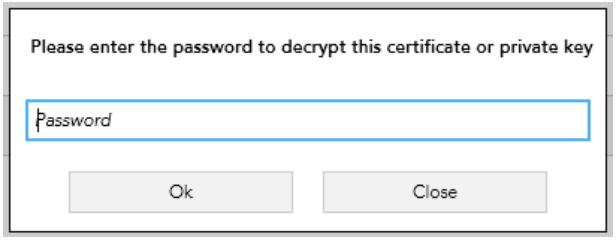
## Add Wi-Fi Certifications

- Wi-Fi certifications may only be added while connected to an ApexZ instrument (communication over serial port, ethernet or Wi-Fi).
- Press the **Plus +** button to select a Wi-Fi certification file on your computer.

Certification attached to Access Point cannot be deleted.




- Certification file formats supported: *.cer; *.crt, *.der; *.p7b; *.pfx; *.p12, *.pem.
- Supports max of 10x Wi-Fi Certifications.
- Encrypted Certifications will require a password to be entered.
- If a certification is attached to an access point, **you cannot delete it.**




## Delete Wi-Fi Certification

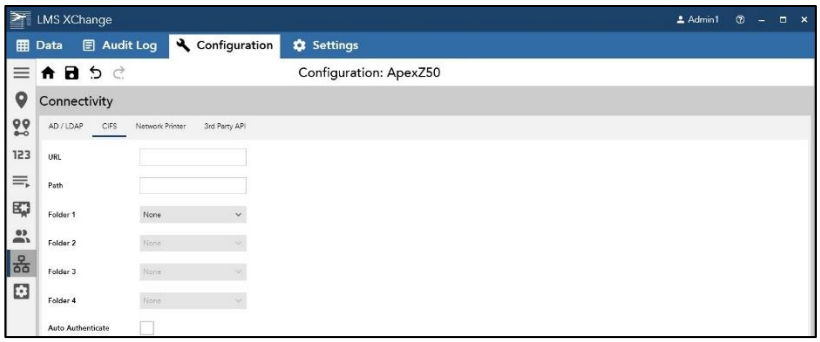
- Select a Wi-Fi Certification to delete.
- Press the Minus - Delete button.
- There is no undo, or discard changes after a certification is deleted.
- If a certification is attached to an access point, you cannot delete it.

## AD/LDAP

On the Instrument's Connectivity screen, AD/LDAP tab, the user can view and update URL and Domain and can select Secure.

**URL:** Enter the IP address where the domain controller is located
**Domain:** Enter the domain name of the domain controller
**Secure:** Enable connecting to the AD/LDAP server via SSL/TLS over port 636. Ask your IT department if your Active Directory domain supports this.

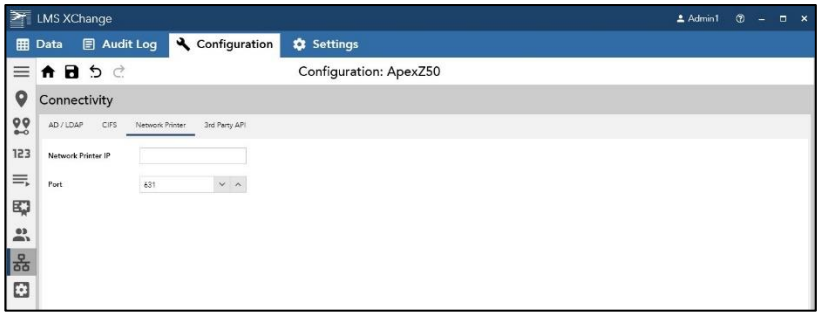
## CIFS




**Instrument Connectivity Tab - CIFS Settings**

On the Instrument's Connectivity screen, CIFS tab, the user can view and update URL, Path, Folder1 name, Folder2 name, Folder3 name, Folder4 name, and Auto Authenticate values for the instrument.

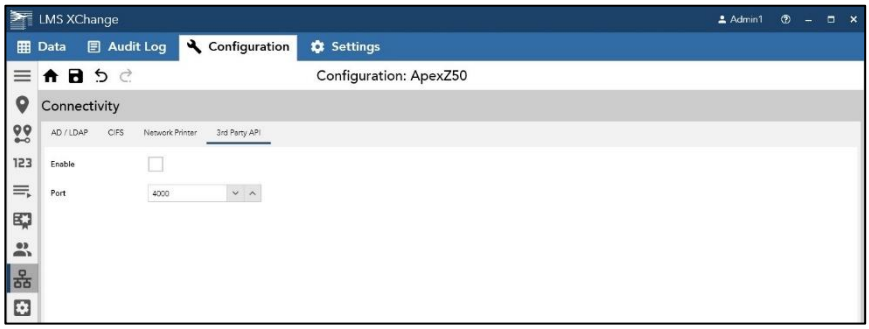
## Network Printer




**Instrument Connectivity Tab – Network Printer Settings**

On the Instrument's Connectivity screen, Network Printer tab, the user can set the IP address and Port used to connect to a Network Printer.

## 3rd Party API

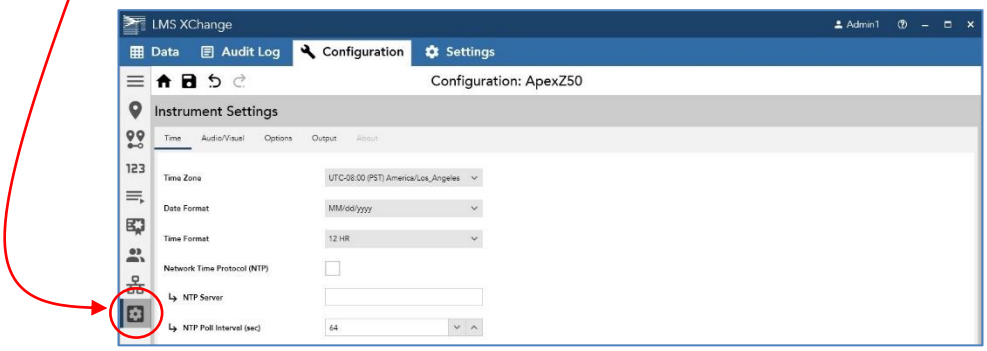



**Instrument Connectivity Tab – C3rd Party API Settings**

On the Instrument's Connectivity screen, 3rd Party API settings tab, the user can enable/disable using 3rd Party API access and set the Port number for the Instrument.

## ApexZ Configuration - Update Instrument Settings

To set or adjust settings specific to the current Instrument, click on the Settings button on the Configuration Tab's left toolbar.

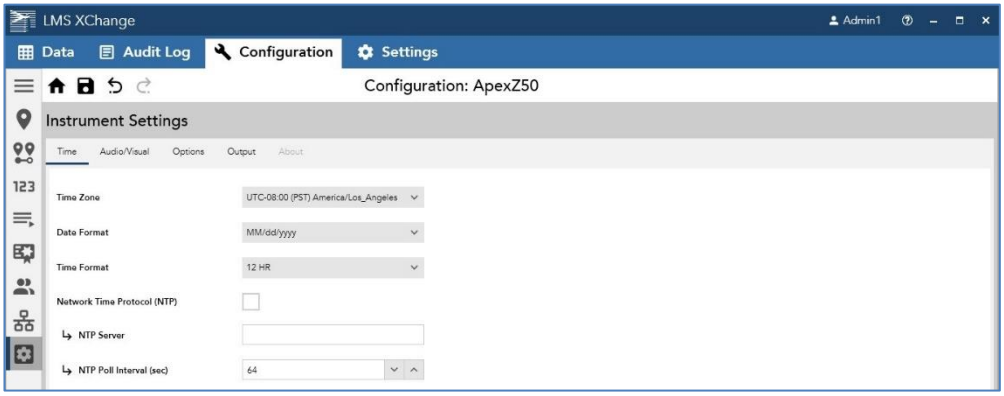



On the Instrument Settings tab users can view and/or update Time, Audio/Visual, Options, and Output settings for the current Instrument.

Click on the Instrument Settings sub-tabs "Time", "Audio/Visual", "Options", "Output", or "About" to view the following settings for the current instrument.

## Time Settings

**Note:** If Daylight savings time is set ON within the system time then daylight savings will enable automatically when the user clicks Save.

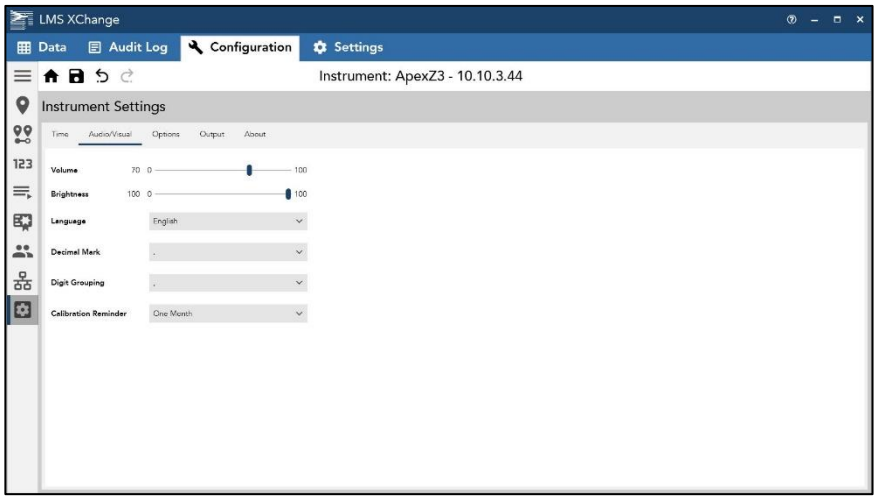



**Instrument Settings Tab - Time Settings**

The “Time” sub-tab contains following instrument settings .

- Select the **Time Zone** for the Instrument from the list of available Time Zones.
- Select the Instrument’s Date **Format:** MM/dd/yyyy, dd/MM/yyyy, yyyy-MM-dd.
- Select the Instrument’s **Time Format**: 12 or 24 hours.
- Enable **Network Time Protocol (NTP)** to synchronize the Instruments time to a selected NTP server.
- If enabled, enter the **NTP Server** to synchronize the Instruments time with.
- If enabled, enter the **NTP Poll Interval (sec)** in seconds, which determines how often the Instrument will sync time with the NTP server.

## Audio/Visual Settings




**Instrument Settings Tab – Audio/Visual Settings**

Click on the “Audio/Visual” sub-tab to display the Audio and Visual settings available for the current Instrument.

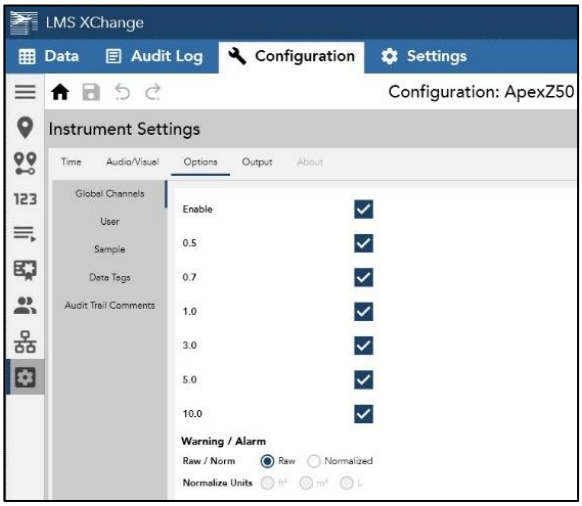
On this sub-tab the user can set or update the Instrument’s volume, screen brightness, language, the symbol used for decimals and digital groupings, as well as set the duration for the Instrument’s calibration reminder.

## Options – Global Channels

Click on the “Options” sub-tab to access the Instrument’s Global Channels, User, Sample, Data Tags, and Audit Trail Comments Settings.

NOTE: The Options screen may have a different layout on older firmware versions.

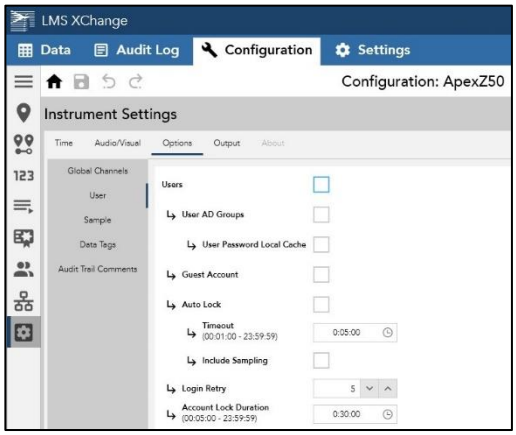
**Note:** Please see the ApexZ Operators Manual for additional information about the settings available on the Instrument Settings, Options sub-tab.




**Configuration Instrument Settings Tab - Options Settings**

- **Global Channels**
  - **Enable:** Select Enable to lock all sampling (manual, presets and sample plans) to only those global channel sizes that are enabled.
  - **Global Channel Sizes:** (dependent on unit type) Enable desired global channel sizes.
  - **Warning / Alarm:** Select Raw or Normalized count values for warning/ alarm limits.
  - **Normalize Units:** If normalized data was selected then select the unit of measure $ft^3$, $m^3$ or L.

## Options – User




**Configuration Instrument Settings Tab – User Settings**

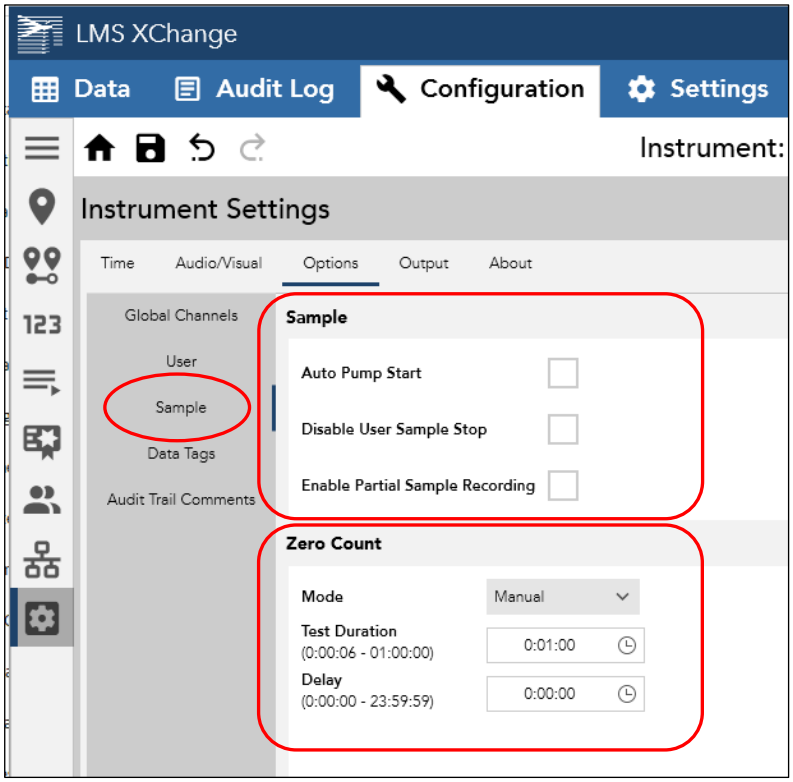
- **User:** Configure settings applicable to users and user accounts for the instrument

**Note:** If Users are enabled on an ApexZ instrument when LMS XChange connects, a username and password will be required to login.

**Note:** Auto Lock only works when Users are enabled. If Users are not enabled then Auto Lock will not function.

  - **Users:** Enable this feature to force user login to use ApexZ.
  - **User AD Groups:** Enable this feature to use Active Directory Groups to set up user permission levels.
  - **User Password Local Cache:** Enable this feature to locally cache passwords when Active Directory Server is unavailable.
  - **Guest Account:** Enable this feature to allow guest account login without a password. Only an Admin level user can enable this feature.
  - **Auto Lock:** With Auto Lock enabled ApexZ will lock the input screen after the Timeout period has elapsed. A login and password will be required to regain access to the ApexZ screen.
    - **Timeout:** Enter the timeout period before Auto Lock will engage.
    - **Include Sampling:** Enable to lock ApexZ during a sample period if the timeout period has expired. Disable to suspend timeout during a sample period.
  - **Login Retry:** Enter the number of times account login attempts can fail before locking the account.
  - **Account Lock Duration:** Enter the amount of time that must pass before a user is allowed to login to an account after the instrument has been locked due to too many unsuccessful login attempts.

## Options – Sample




**Configuration Instrument Settings Tab – Sample Settings**

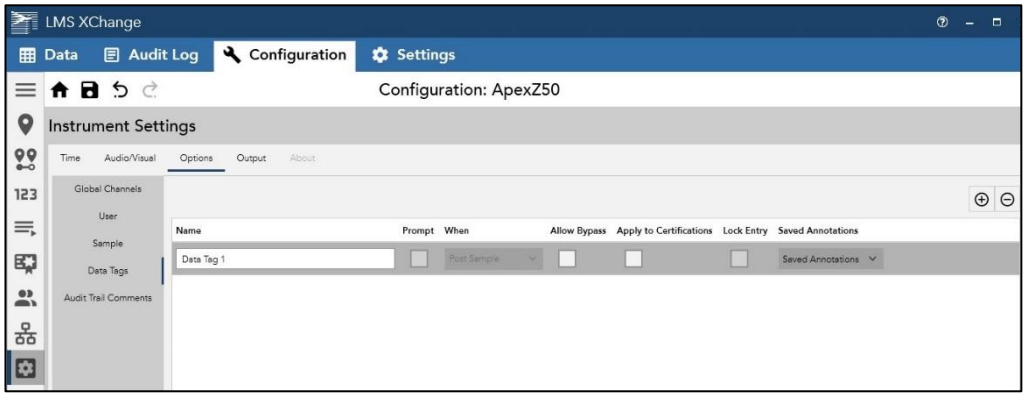
- **Sample:** Enable/Disable settings that affect sampling on the instrument
    - **Auto Pump Start**: Check this box to enable or disable Pump Start up.
        - If Pump Startup is Disabled: The ApexZ will pause the pump during Delay or Hold times greater than 1 minute.
        - If Pump Startup is Enabled: The ApexZ will not pause the pump during any Delay or Hold times.
    - **Disable User Sample Stop:** With this option enabled users may not stop a sample once it has started.
    - **Enable Partial Sample Recording:** Select to record sample data when instrument is stopped before the end of the sample time.

- **Zero Count:** Allow the user to modify Zero Count Mode settings.
  - **Mode:**
    - *Disabled*: Zero Count button disabled on the Main Screen.
    - *Manual*: Zero Count sample will run at the sample and delay time set below.
    - *Auto*: Sample will run until it zero counts continuously for the sample time set below.

  - **Test Duration:** Click on the clock icon to set the Zero Count's length of time.

  - **Delay:** Click on the clock icon to select how long to delay starting the Zero Count test.

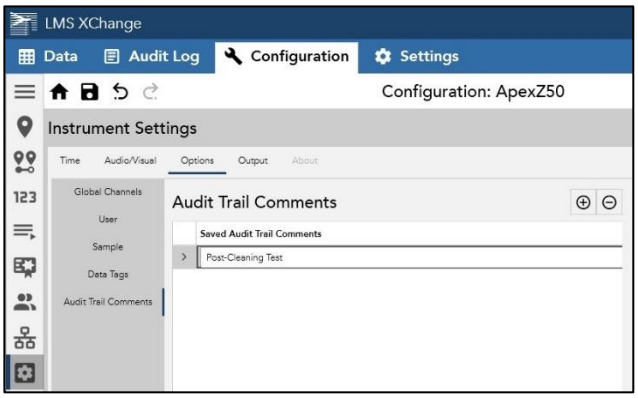
## Options – Data Tags




**Configuration Instrument Settings Tab – Data Tag Settings**

- **Data Tags**
  - **Add/Delete a Data Tag**: Press the "+" Button to Add a new Data Tag to the configuration. Press the "-" Button to delete the highlighted data tag.
  - **Select Data Tag:** Select a data tag and that Data Tag Settings will display below.
  - **Prompt:** Enable prompt to request sample data tag input.
  - **When:** Select *Pre Sample* to prompt for sample data tag input before a sample starts. Select *Post Sample* to prompt for sample data tag input after a sample is stopped/completed.
  - **Allow Bypass:** Enable this feature to allow the user to bypass entering any input at the data tag prompt while sampling. Bypass does not apply to updating tags from the Data screen.
  - **Apply to Certifications:** Enable this feature to prompt data tag entry when running Certifications. If this feature is disabled then no prompt for data tags will appear during Certification sampling.
  - **Lock Entry**: Enable this feature to lock a data tag entry the first time it is entered. No further edit of the data tag entered will be allowed after initial entry.
  - **Saved Annotations:** Add commonly used Data Tag Annotations for quick user selection.
    - Click the **Add Annotation** button from the dropdown menu to create and name a new Annotation.

## Options – Audit Log Comments



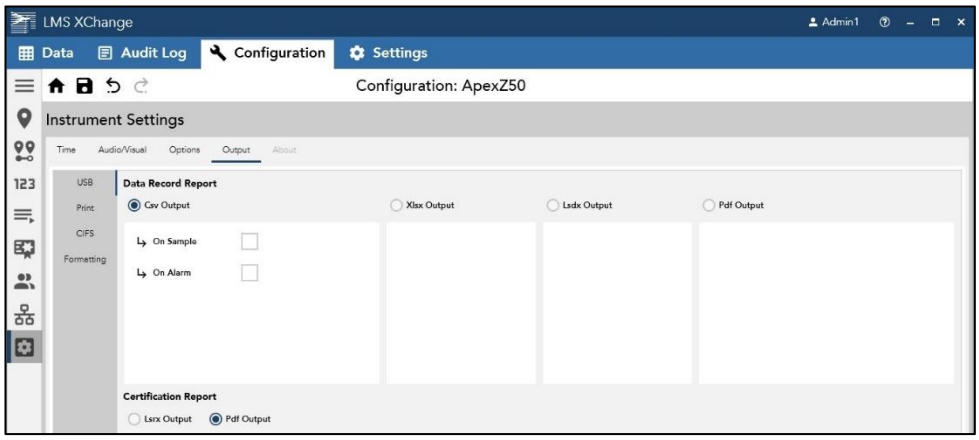

**Configuration Instrument Settings Tab – Audit Trail Comments Settings**

Click on the Add Audit Trail Comments button to create and name a new Audit Trail Comment for quick user selection.


Select a saved Audit Trail Comment and press the Delete Audit Trail Comment button to remove the comment from the Instrument setup.

## Output - USB Settings

Click on the “Output” sub-tab to access the Instrument’s Output settings for USB, Print, CIFS, and Formatting.



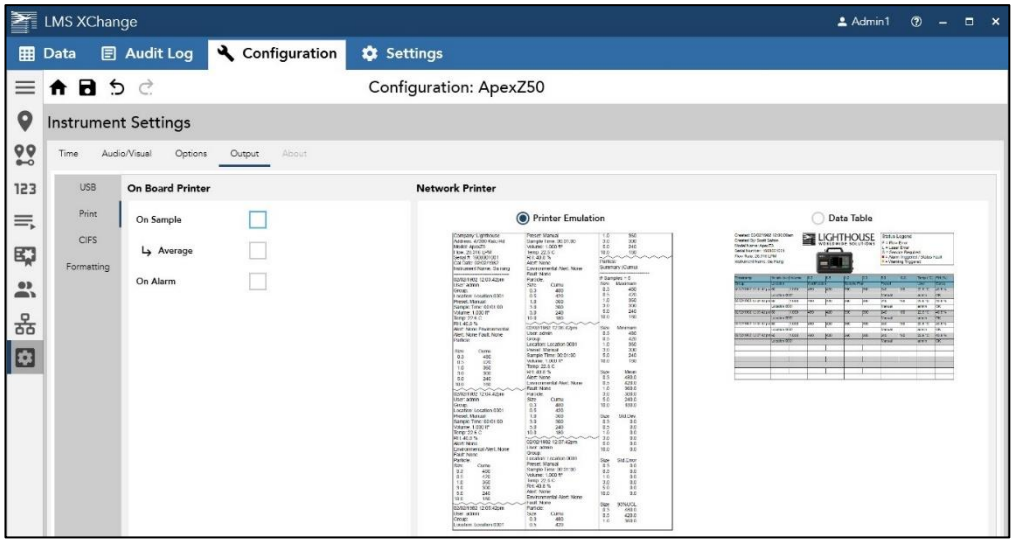

**Instrument Settings Tab - Output Settings**

**Note:** Output on Sample and Output on Alarm are only available for the .csv file format.

- **Data Record Report:** Provides the user options for file types when records are output via USB
  - **Csv Output:** Outputs records to USB in .csv file format.
    - **On Sample:** Enable this feature to export data to USB after every sample taken.
    - **On Alarm.** Enable this feature to export data to USB after every sample taken where an alarm is triggered.
  - **Xlsx Output:** Outputs records to USB in .xlsx file format.
  - **Lsdx Output:** Outputs records to USB in .lsdx file format.
  - **Pdf Output:** Outputs records to USB in .pdf file format.
- **Certification Report:** Provides the user options for file types when certification reports are output via USB.
  - **Lsrx Output:** Outputs reports to USB in .lsrx file format.
  - **Pdf Output:** Outputs reports to USB in .pdf file format.

## Output - Print Settings

On the Configuration – Settings – Output – Print screen, the user can change basic settings relating to the (optional) On Board Printer and Network Printer outputs.

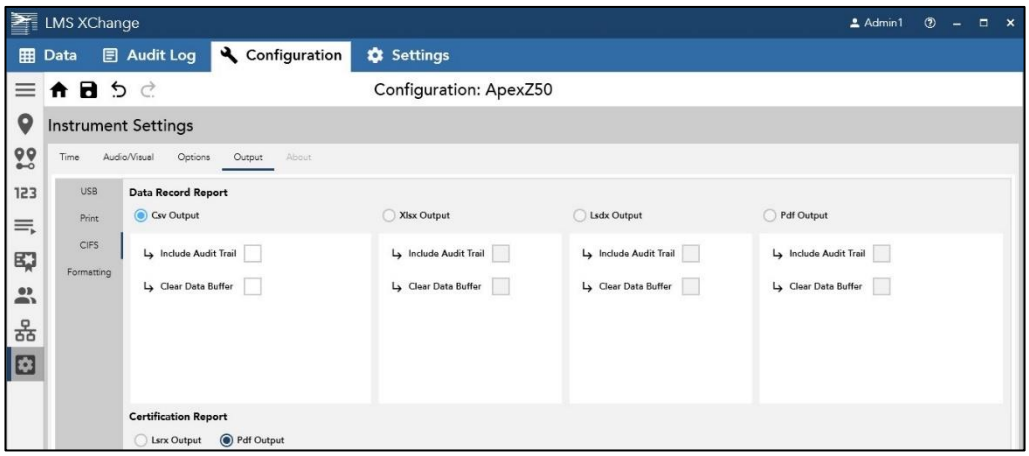



**Instrument Settings Tab - Output – Print Settings**

- **On Board Printer:** Provides the user options relating to the optional On Board Printer.
    - **On Sample:** Enable this feature to print data after every sample taken.
        - **Average:** Enable this feature to print average counts after a sample with multiple cycles is complete. On Sample must be enabled for Averages to print.
    - **On Alarm:** Enable this feature to print data after every sample taken where an alarm was triggered.
- **Network Printer:** Provides the user options relating to connected Network Printers
    - **Printer Emulation:** When selected, data output to Network Printers will emulate the look of the On Board Printer samples, providing three columns per page.
    - **Data Table:** When selected, data output to Network Printers will be formatted into a Data Table as shown. Settings for the setup of the Data Table are available in the Output – Formatting tab.

## Output - CIFS Settings

On the Configuration – Settings – Output – CIFS screen, the user can change settings relating to the CIFS output file types and formats.

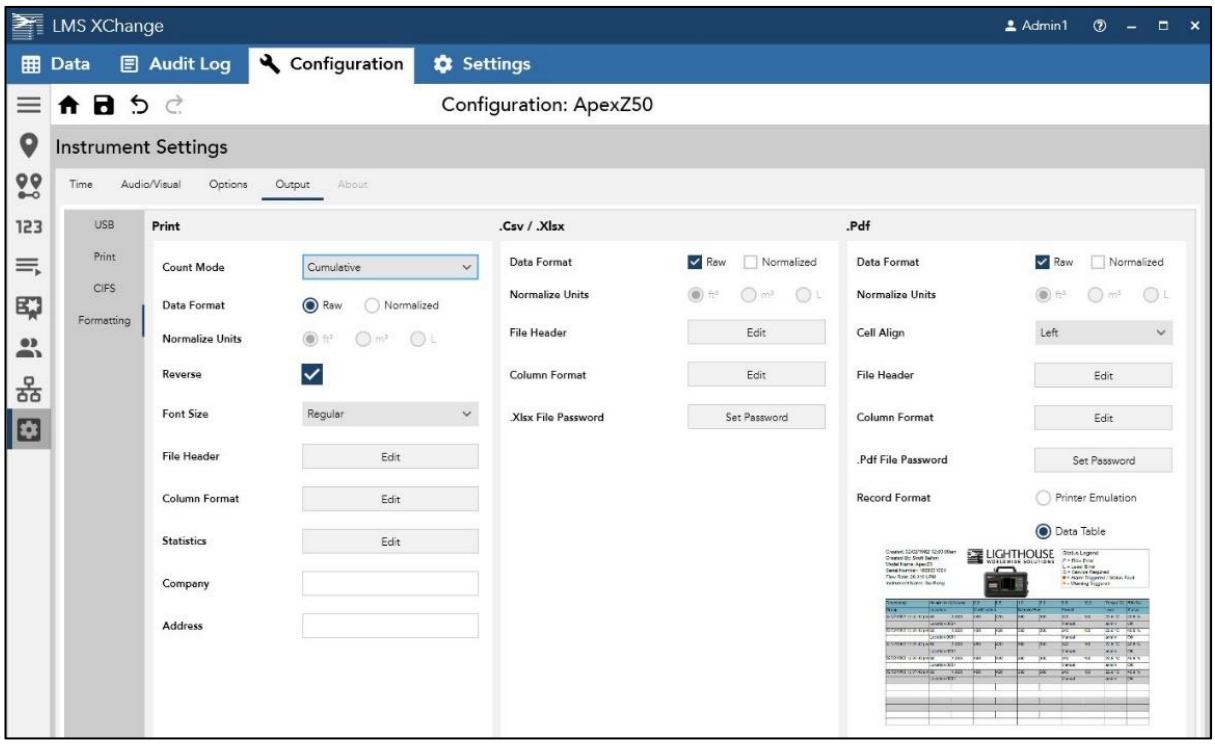



**Instrument Settings Tab - Output - CIFS Settings**

- **Data Record Report:** Provides the user options for which file type to use when exporting via CIFS.
    - **Csv/Xlsx/Lsdx/Pdf Output:** Four options that provide for data records output via CIFS to be in .csv, .xlsx, .lsdx, or .pdf file formats.
        - **Include Audit Trail:** Enable this feature to export the audit trail after successfully exporting data via CIFS.
        - **Clear Data Buffer:** Enable this feature to delete all data after successfully exporting all data records via CIFS.
- **Certification Report:** Provides the user options for which file type to use when exporting Certification Reports via CIFS.
    - **Lsrx/Pdf Output:** Two options that provide for certification reports output via CIFS to be in either .lsrx or .pdf file formats.

## Output - Formatting

On the Configuration – Settings – Output – Formatting screen, the user can change settings relating to the data layouts for print, .csv/.xlsx, and .pdf file formats.

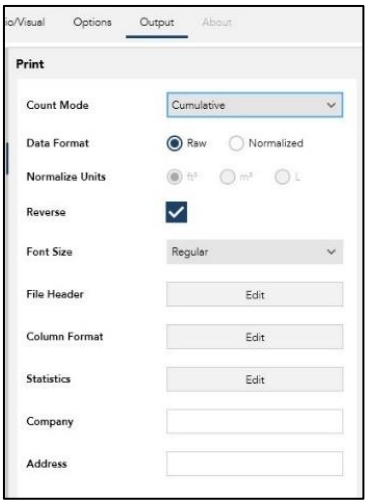



**Instrument Settings Tab - Output - Formatting Settings**

The Formatting screen is split into three sections: Print, .Csv/.Xlsx, and .Pdf. Each of these formats have their own formatting settings.

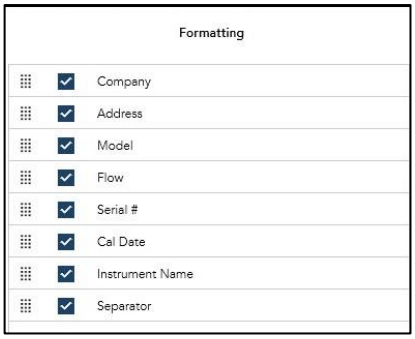
## *Print*

Use the Print section to edit what information is printed.



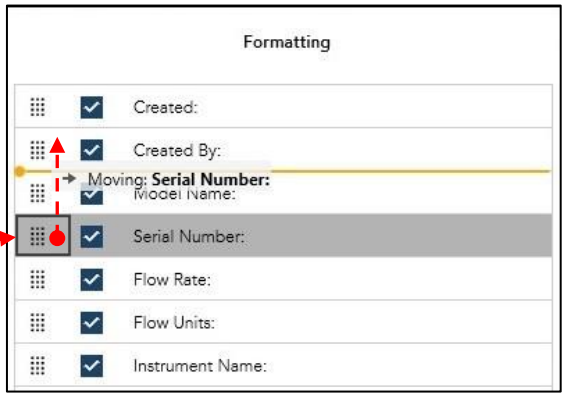

**Output Print Options**

- **Count Mode:** Select Cumulative, Differential or both.
- **Data Format:** Select either Raw or Normalized.
- **Normalize Units:** If data format Normalized is selected then select ft3, m3 or L for the unit of measure.
- **Reverse:** Enable this feature to print data in reverse.
- **Font Size:** Regular or Small size font
- **File Header:** Enable file header labels to be included on the output file header.
  - **Company:** Enable to include the Company name as defined in the text box below.
  - **Address:** Enable to include the Company address as defined in the text box below.
  - **Model:** List the Model type on the file header.
  - **Flow:** Enable to include the flow rate on the file header.
  - **Serial #:** Enable to include the serial number on the file header.
  - **Cal Date:** Enable to include the Calibration date on the file header.
  - **Instrument Name:** Enable to include the Instrument Name on the file header.
  - **Separator:** Enable to add a blank separator line in the file header.




**File Header Options**

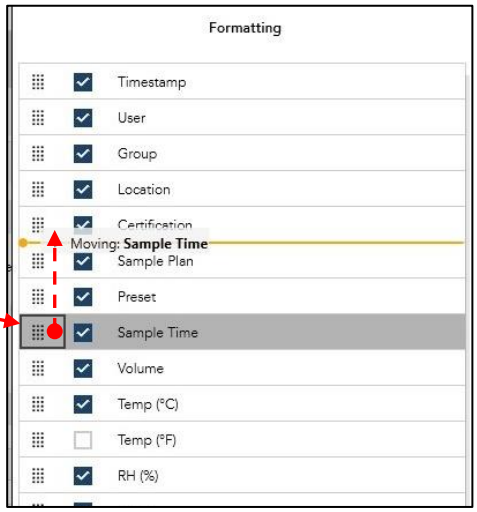
To re-order the File Headers, click on the grid at the beginning of the line and drag it to the desired new position.



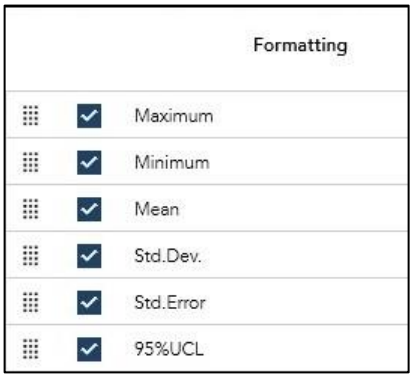
- **Column Format:** Enable or disable data columns to be included in the print output.


  - **Timestamp:** Date and time stamp the data count was collected.
  - **User:** The user logged in at the time the sample data count was taken.
  - **Group:** The Group name the location sampled is a member of.
  - **Location:** Location Id the sample was collected.
  - **Certification:** The certification name that was sampled.
  - **Sample Time:** The length of the sample in seconds.
  - **Sample Plan:** The sample plan name.
  - **Preset:** The preset name.
  - **Volume:** The volume of the sample taken.
  - **Temp (°C):** Temperature in degrees Celsius.
  - **Temp (°F):** Temperature in degrees Fahrenheit.
  - **RH (%):** Relative humidity percentage.
  - **Alert:** Alerts based on channel alert values.
  - **Environmental Alert:** Recorded Alerts from Environmental Sensors included with the data.
  - **Fault:** Recorded faults for the records listed.
  - **Channel Data:** The count data for the particle channels.

To re-order the File Headers, click on the grid at the beginning of the line and drag it to the desired new position.



- **Statistics:** Enable or disable the addition of particular statistics in the printed data.
  - **Maximum:** Enable to include the Maximum Count on the printed report.
  - **Minimum:** Enable to include the Minimum Count on the printed report.
  - **Mean:** Enable to include the Mean Count on the printed report.
  - **Std Dev.:** Enable to include the Standard Deviation on report.
  - **Std. Error:** Enable to include the Standard Error on the report.
  - **95% UCL:** Enable to include the 95% UCL on the printed report.



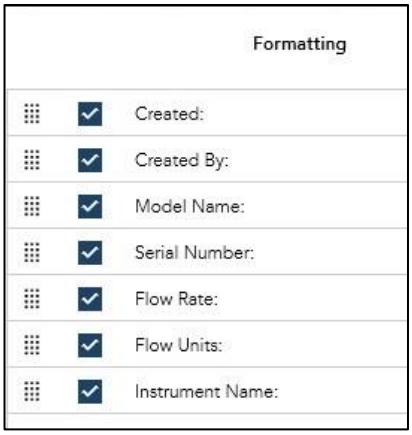

- **Company:** Text entered here will be included in the Company line of the file header, enabled in the File Headers section.
- **Address:** Text entered here will be included in the Address line of the file header, enabled in the File Headers section.

## *.Csv/.Xlsx*

Use the .Csv/.Xlsx section to edit what data is included in the .csv and .xlsx file outputs.


**Output .csv/.xlsx Settings**

- **Data Format:** Select to display the data's Raw or Normalized values.
  - **Normalize Units:** Select the normalized units of measure.
- **File Header:** Enable file header labels to be included on the output file header.
  - **Created:** Enable Created date to include on the output file header.
  - **Created By:** Enable to include Created By: on the output file header.
  - **Model Name:** Enable to include model name on the file header.
  - **Serial Number:** Enable to include the serial number on the output file header.
  - **Flow Rate:** Enable to include the flow rate on the output file header.
  - **Flow Units:** Enable to include the flow units on the output file header.
  - **Instrument Name:** Enable to include the instrument name on the output file header.



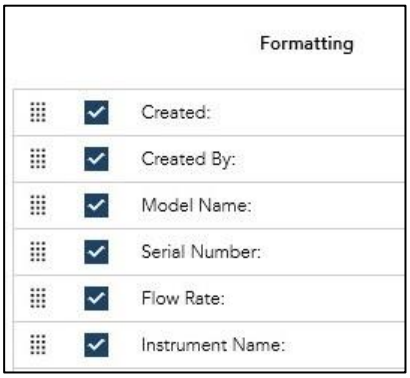
- **Column Format:** Enable or disable data columns to be included in the .csv/.xlsx output.
  - **Timestamp:** Date and time staple the data count was collected.
  - **Location:** Location Id the sample was collected.
  - **Sample (sec):** The length of the sample in seconds.
  - **Volume:** The volume of the sample taken.
  - **1st channel data column:** (0.3µm particle size, ApexZ3)
  - **1st channel units:** (0.3/$ft^3$ units of measure will match normalized units selected above)
  - **2nd channel data column:** (0.5µm)
  - **2nd channel units:** (0.5/ $ft^3$)
  - **3rd channel data column:** (1.0µm)
  - **3rd channel units:** (1.0/ $ft^3$)
  - **4th channel data column:** (3.0µm)
  - **4th channel units:** (3.0/ $ft^3$)
  - **5th channel data column:** (5.0µm)
  - **5th channel units:** (5.0/ $ft^3$)
  - **6th channel data column:** (10.0µm)
  - **6th channel units:** (10.0/ $ft^3$)
  - **Group:** The Group name the location sampled is a member of.
  - **Certification:** The certification name that was sampled.
  - **Sample Plan:** The sample plan name.
  - **Preset:** The preset name.
  - **User:** The user logged in at the time the sample data count was taken.
  - **Alarm:** Particle count alarm value triggered.
  - **Warning:** Particle count warning value triggered.
  - **Environmental Alarm:** Environmental input Alarm triggered.
  - **Environmental Warning:** Environmental input Warning triggered.
  - **Flow:** Flow Status.
  - **Laser:** Laser Status.
  - **Service:** Service Status.
  - **Temp (°C):** Temperature in degrees Celsius.
  - **Temp (°F):** Temperature in degrees Fahrenheit.
  - **RH (%):** Relative humidity percentage.
  - **Data Tag(s):** Column(s) for any data tags created and tagged on this data record.


- **.Xlsx File Password:** Enable password-protection for editing of the output Excel file.

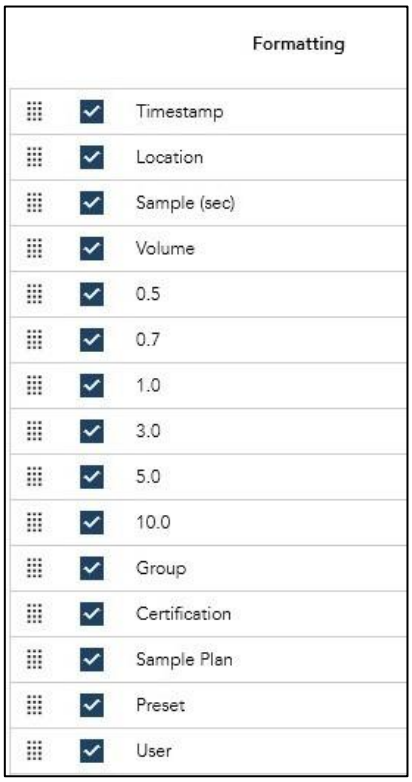
## *.PDF*

Use the .PDF section to edit what data is included in the .pdf file format output.

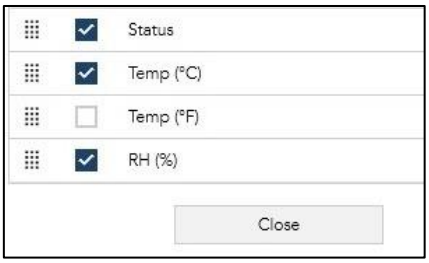

- **Data Format:** Select Raw or Normalized
- **Normalized Units:** Select units of measure $ft^3$, $m^3$ or L.
- **Cell Align:** Select Left, Center, or Right for where the data will be aligned inside the cells.
- **File Header:** Enable file header labels to be included on the PDF output file header.
    - **Created:** Enable to include Created date on the output file header.
    - **Created By:** Enable to include Created By: on the output file header.
    - **Model Name:** Enable to include model name on the file header.
    - **Serial Number:** Enable to include the serial number on the output file header.
    - **Flow Rate:** Enable to include the flow rate on the output file header.
    - **Instrument Name:** Enable to include the instrument name on the output file header.




- **Column Format:** Enable or disable data columns to be included in the pdf output.
    - **Timestamp:** Date and time staple the data count was collected.
    - **Location:** Location Id the sample was collected.
    - **Sample (sec):** The length of the sample in seconds.
    - **Volume:** The volume of the sample taken.
    - **1st channel data column:** (0.3µm particle size, ApexZ3)
    - **1st channel units:** (0.3/$ft^3$ units of measure will match normalized units selected above)
    - **2nd channel data column:** (0.5µm)
    - **2nd channel units:** (0.5/ $ft^3$)
    - **3rd channel data column:** (1.0µm)
    - **3rd channel units:** (1.0/ $ft^3$)
    - **4th channel data column:** (3.0µm)
    - **4th channel units:** (3.0/ $ft^3$)
    - **5th channel data column:** (5.0µm)
    - **5th channel units:** (5.0/ $ft^3$)



- **6th channel data column:** (10.0µm)
- **6th channel units:** (10.0/ $ft^3$)
- **Group:** The Group name the location sampled is a member of.
- **Certification:** The certification name that was sampled.
- **Sample Plan:** The sample plan name.
- **Preset:** The preset name.

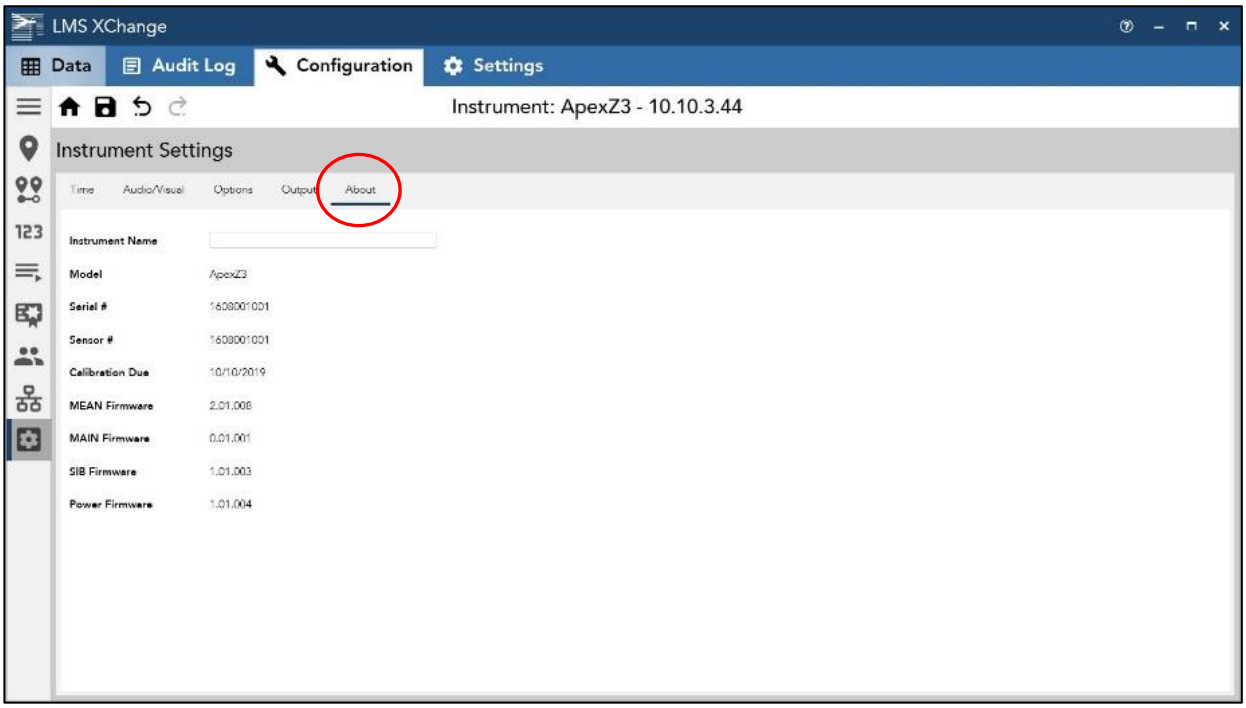



- **User:** The user logged in at the time the sample data count was taken.
- **Status:** Flow, Laser, and Service Status.
- **Alarm:** Particle count alarm value triggered (added as data highlight in Red).
- **Warning:** Particle count warning value triggered (added as data highlight in Orange).
- **Environmental Alarm:** Environmental input Alarm triggered (added as data highlight in Red).
- **Environmental Warning:** Environmental input Warning triggered (added as data highlight in Orange).
- **Temp (°C):** Temperature in degrees Celsius.
- **Temp (°F):** Temperature in degrees Fahrenheit.
- **RH (%):** Relative humidity percentage.
- **Data Tag(s):** Column(s) for any data tags created and tagged on this data record.

- **.Pdf File Password:** Enable password-protection for editing of the output PDF file.

- **Record Format:** The user can choose which format they want the PDF file to be created in.
  - **Printer Emulation:** When selected, data output to PDF files will emulate the look of the On Board Printer samples, providing three columns per page.
  - **Data Table:** When selected, data output to PDF files will be formatted into a Data Table as shown.

## Instrument About Settings




**Instrument Settings Tab - About Settings**

Click on the “About” tab to display the following information about the Instrument (only available if the unit is currently connected):

**Instrument Name (blank if not defined)**
**Model**
**Serial#**
**Calibration Date**
**MEAN Firmware**
**MAIN Firmware**
**SIB Firmware**
**Power Firmware**

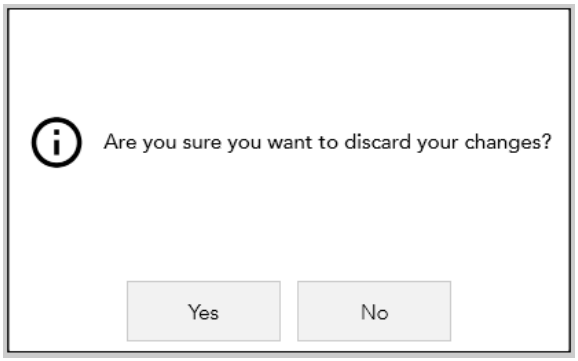
## ApexZ Configuration

### Save All Updates and Settings

### Save Changes Button

Click the “Save Changes” button to save and send all of the configuration changes to the instrument.

If the user clicks on the LMS XChange main toolbar, such as on the Data, Audit Log, or Settings tabs, while un-saved changes exist for the current Instrument, LMS XChange will ask the user what they want to do with the Instrument’s un-saved changes, by popping up the following message,




**Unsaved Instrument Changes Message**

Click “Yes” to discard all changes the user has made to the Instrument since the last time they clicked the “Save” button.

Click “No” to return to Configuration tab. At this point the user should click the “Save Changes” button on the configuration tab, to save the changes and send the changes to the Instrument.

### Home Button

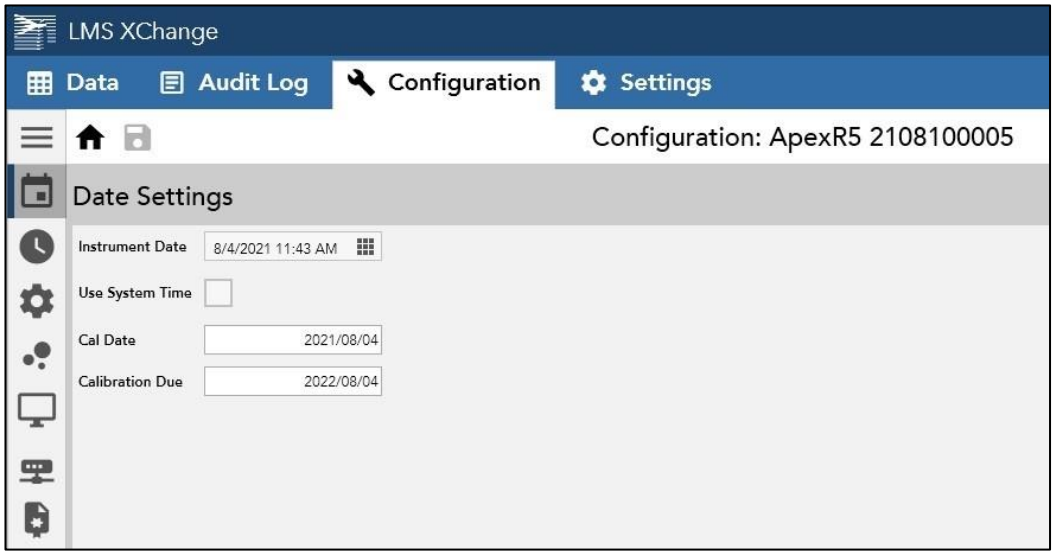
To leave the configuration file and return to the main configuration tab and its list of Instruments and Configuration files, click the Home button. Note, if there are any unsaved changes, the users will be prompted if they want to discard the changes.

# ApexR Configuration Settings

## Date Settings

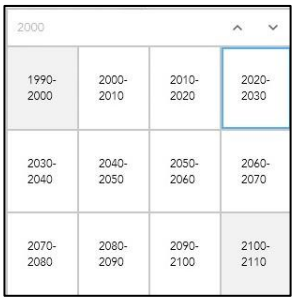
The first screen that shows after properly connecting an ApexR unit and either double-clicking on the unit in the list of connected instruments or clicking on the Edit Configuration button will be the Date Settings screen.

To configure the connected ApexR's date and time, use the Instrument Date box. The user can either enter a date and time by clicking in the box and manually entering the info., or use the pop-up menu to select from the Date and Time options.

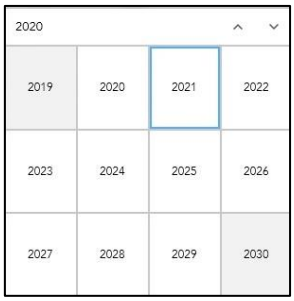



**ApexR Date Settings Configuration Page**

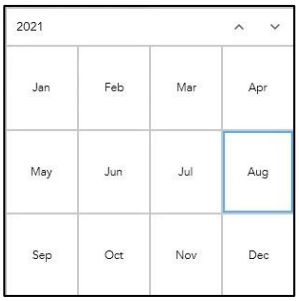
Click on the button in the Instrument Date box to bring up the date and time selection window. From the left side the user can first select the desired decade, then year, then month, then day, with the current selection highlighted in blue as in the images below.




**Decade Selection**




**Year Selection**

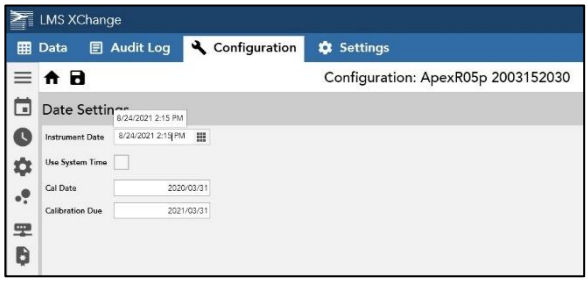



**Month Selection**


**Day Selection**

By selecting the time section the user can select the desired hour, with the selected hour highlighted in blue. The user can then enter the correct minutes manually in the textbox.


**Hour Selection**

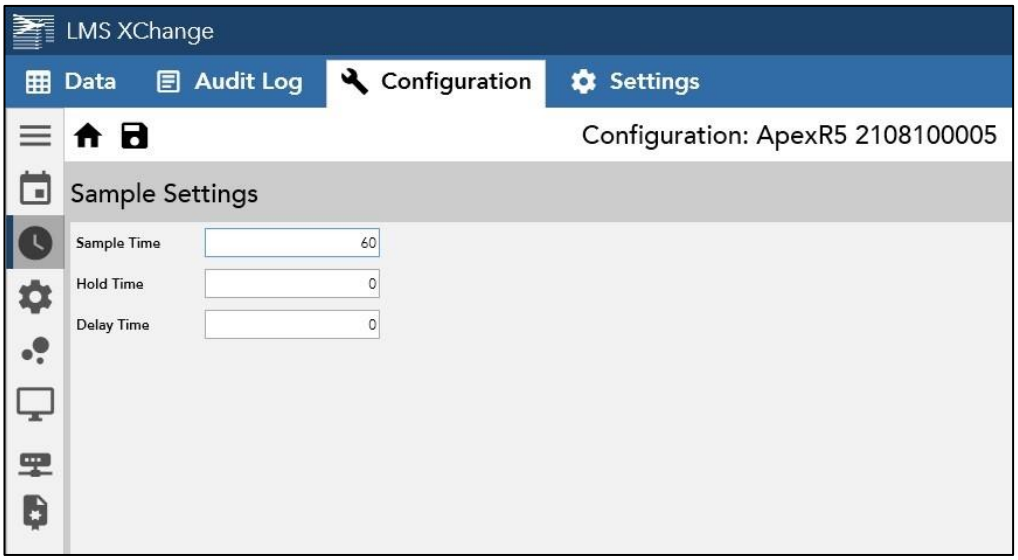



**Minute Entry**

- Enabling Use System Time will set the time to the current System Time.
- The Cal Date and Calibration Due values are only viewable, not editable.

## Sample Settings

The values for the connected ApexR samples can be edited on the Sample Settings screen.

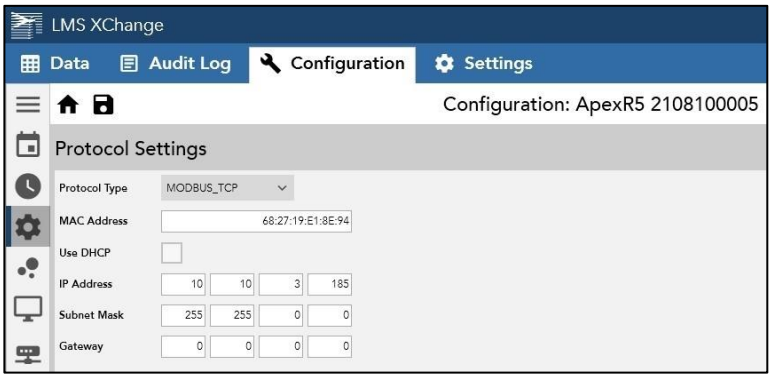



**ApexR Sample Settings Configuration Page**

The user can change the values for the connected ApexR Sample Time, Hold Time, and Delay Time by clicking in each window and manually entering a new time value. The values entered will all be seconds.

## Protocol Settings (Ethernet)

The Protocol Settings screen allows the user to configure the communication protocol for the selected ApexR unit.




**ApexR Protocol Settings Configuration Page**

Select from the dropdown menu for Protocol Type.

**Note:** DHCP must be disabled to allow the user to manually input Addressing values.

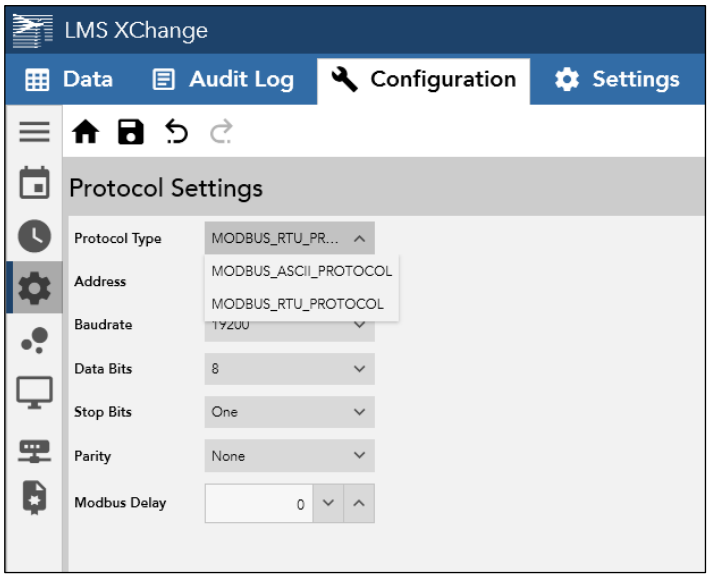
The MAC Address is set by manufacturing and is available here as a view-only window.

Click the Use DHCP checkbox to enable DHCP (Dynamic Host Configuration Protocol) for addressing and use the refresh button to automatically assign values for the IP Address, Subnet Mask, and Gateway.

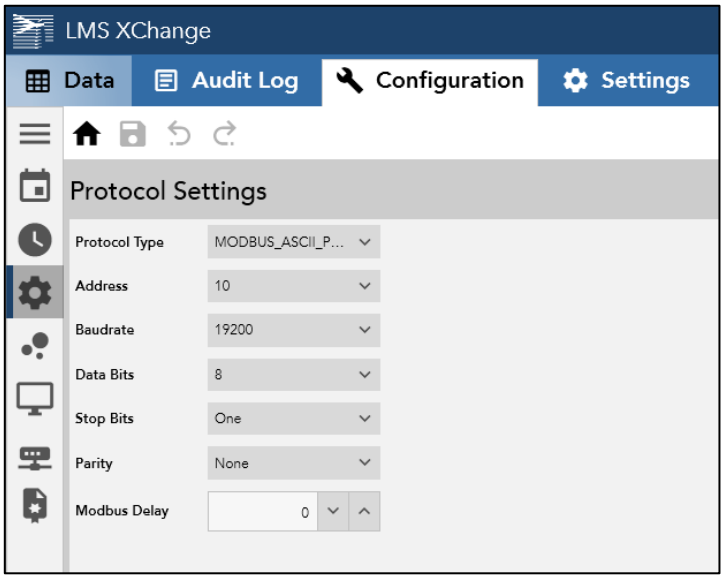
With DHCP enabled the IP Address, Subnet Mask, and Gateway fields will not be editable. Alternatively, the user can manually enter values for the IP Address, Subnet Mask, and Gateway. Contact your company IT department for assistance in setting these values.

## Protocol Settings (Serial)

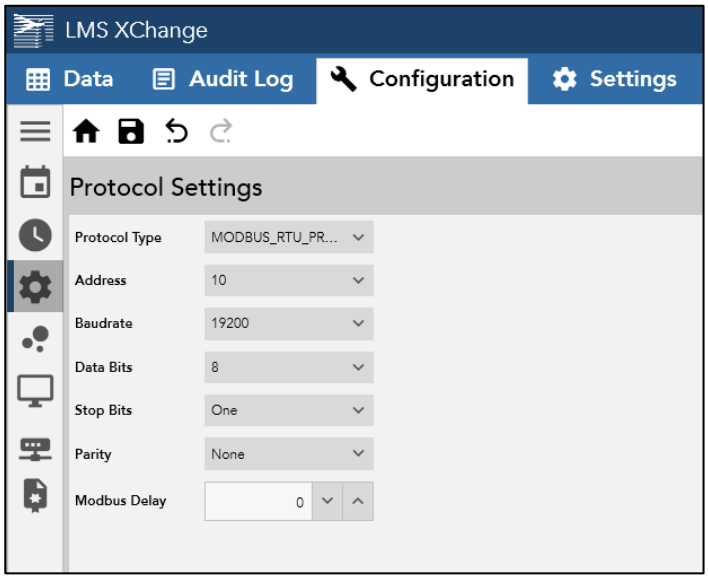
For ApexR Serial connected units, select MODBUS_ASCII_PTOTOCOL or MODBUS_RTU_PROTOCOL




**ApexR Serial Protocol Settings Configuration Page**




**ApexR Protocol Settings for Serial ASCII**

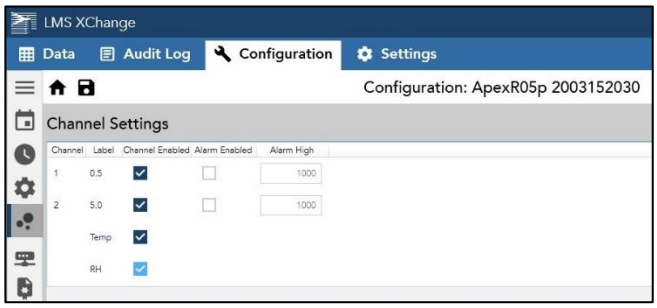



**ApexR Protocol Settings for Serial RTU**

Enter Protocol Settings for Address, Baud Rate, Data Bits, Stop Bits, Parity, Modbus Delay.

## Channel Settings

The Channel Settings screen allows the user to Enable or Disable available channels, Enable or Disable Channel Alarms, and set the Alarm High values.



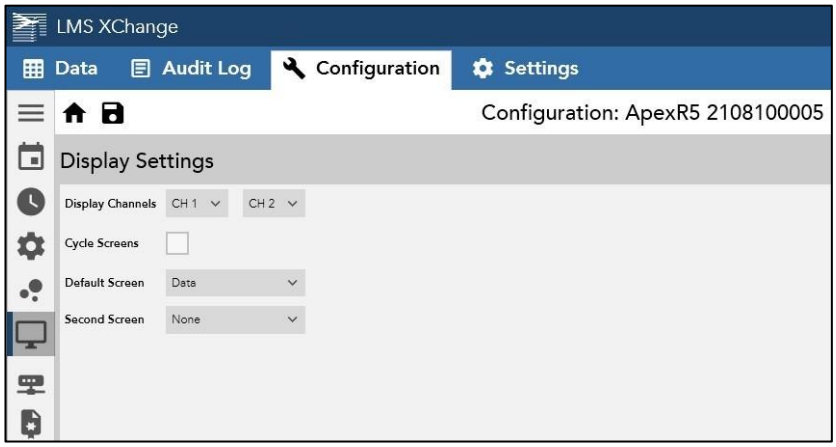

**ApexR Channel Settings Configuration Page**

Enable or Disable available channels by clicking in the Channel Enabled checkbox.

Enable or Disable Alarms for each channel by clicking in the Alarm Enabled checkbox. When the Alarm is Enabled, the user can click in the Alarm High textbox and manually enter the Alarm value.

## Display Settings

The Display Settings screen will be available on ApexR units that have an optional embedded display screen. The Display Settings will only apply to units that contain the optional embedded display screen.




**ApexR Display Settings Configuration Page**

Display Channels allows the user to select which channels will be available for display on the unit's screen.

With the Cycle Screens checkbox enabled, the screen will cycle through the Default screen and second screen.

Using the Default Screen dropdown menu, the Default Screen can be set to Data or Information. The Data Screen will display the channel data, and the Information Screen will display Location or ID data, as below:

- Data Screen: mm/dd/yy hh:mm
  CH1 counts for CH1
  CH2 counts for CH2
- Information Screen: Loc#: xxxxxxxxx
  (or)
  ID: xxxxxxxxx
  IP Address

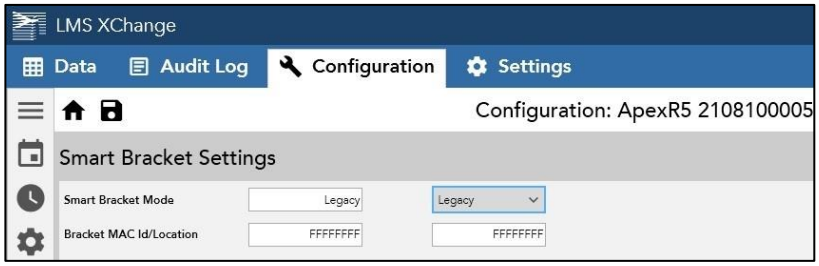
Second Screen gives the user the ability to set which screen will be shown Second when the unit is set to Cycle Screens.

## Smart Bracket Settings

The Smart Bracket Settings page allows the user to configure settings related to the optional Smart Bracket. The screen is split into two sections: The left side shows the current settings, and the right side allows the user to change those settings.

The dropdown menu has three options: Disabled, Legacy, and CommSupport. When Disabled, there are no options for configuring the Smart Bracket.

Choosing Legacy puts the unit into Legacy mode, giving only the option to set the Mac Id/Bracket Location for a currently connected Smart Bracket.

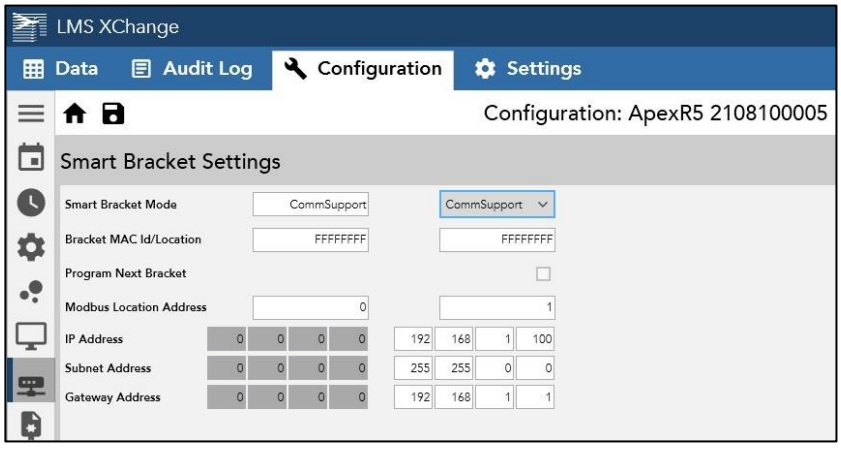



**ApexR Smart Bracket Settings Configuration Page - Legacy**

With no Bracket detected, the value will be shown as FFFFFFFF. When attached to a Smart Bracket the Bracket information will be displayed.

Choosing CommSupport puts the Bracket into CommSupport mode and displays a number of other options for the user.

**Note:** For units with DIP switch addressing, if DIP Switch 7 is UP (Off) the CommSupport will be forced into Legacy behavior, showing only the Bracket MAC ID/Location. Any Modbus addressing will also be ignored.




**ApexR Smart Bracket Settings Configuration Page - CommSupport**

The ability to change/update the Brackets MAC Id/Location value is still present in CommSupport mode, and this mode adds the ability to define the Modbus Location Address as well as the Serial and/or Ethernet address information, depending on the type of unit. The program will automatically display the available fields for the connected unit.

**Note:** Program Next Bracket mode does not affect the Location ID. The unit must be currently connected to the Bracket to update the Location ID.

The Program Next Bracket checkbox, when enabled, allows the user to overwrite the configuration of the currently connected Smart Bracket, or if not connected to one currently then the next Smart Bracket the instrument connects to. Once the effect occurs, the unit will not program any brackets until the mode is set again.

The Serial and/or Ethernet addressing information can be modified and saved in the CommSupport screen. Contact the IT department to ensure proper addressing.

## Important Notes on Smart Bracket Behavior

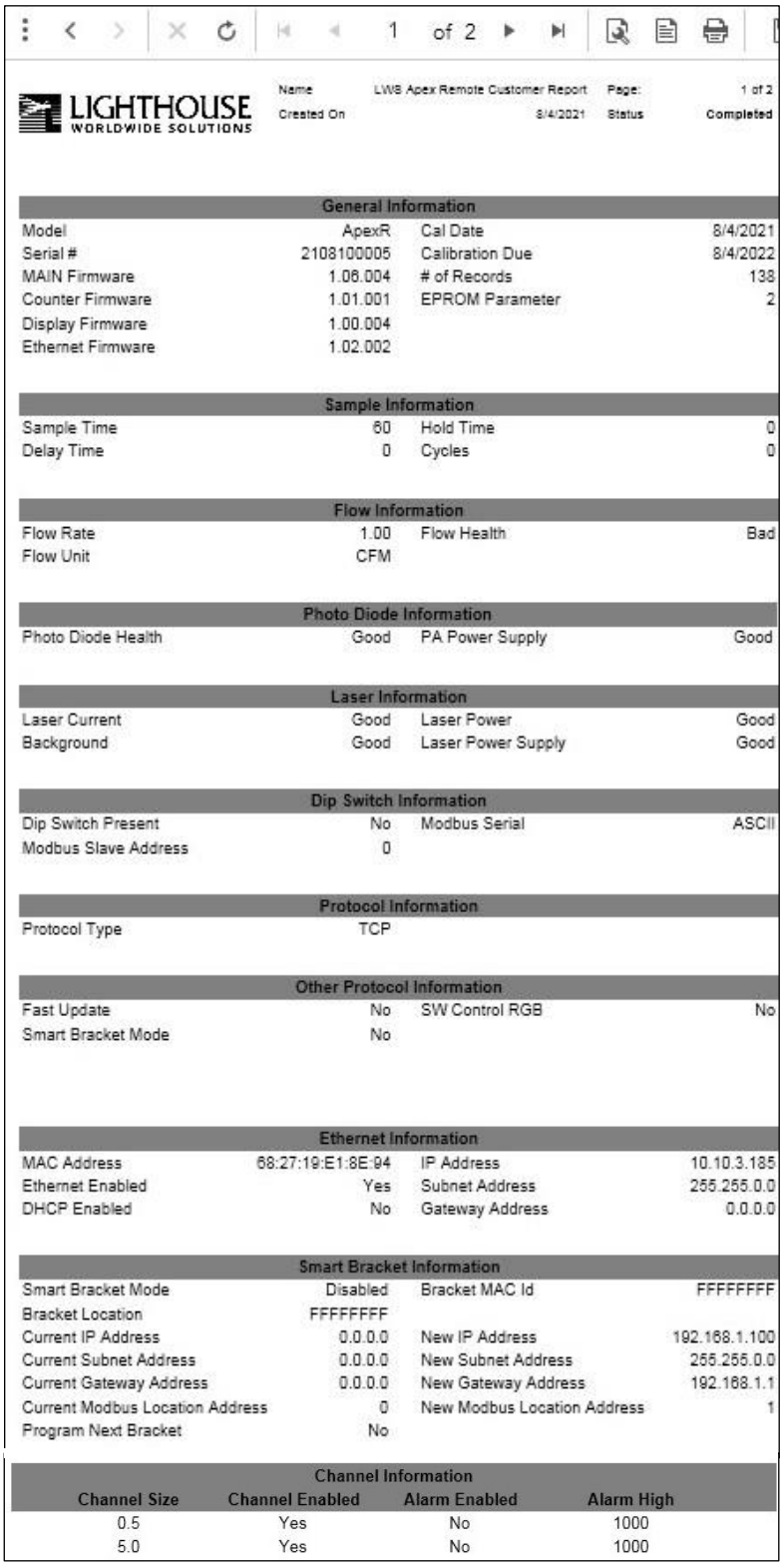
- ➔ When a unit is configured in either Smart Bracket mode and a Smart Bracket is not connected, the Alarm LED will blink WHITE until one is connected. Once the Alarm LED stop blinking and the unit is properly fastened to the bracket, perform a power cycle to ensure fields are properly updated.
- ➔ Units that have DIP Switch 7 UP (OFF) will only be able to use the Smart Bracket location ID and Serial communication with the Modbus address set by the DIP Switch configuration even if the unit is set to be in CommSupport mode.
- ➔ Units without a bracket in CommSupport will NOT be able to be communicated to (unless DIP Switch 7 is up) over any communication port.
- ➔ Communication configuration set before enabling Smart Bracket mode shall be retained in internal storage if the unit disables Smart Bracket mode.
    - ➔ NOTE: As of IST v1.6.07 and ApexRXp v1.01.009, the ApexRXp Ethernet configuration is sometimes resets to 0's when switching between Protocol Types.
- ➔ When in CommSupport, when there is no bracket detected, all Smart Bracket fields will be defaulted to 0's to avoid improper initialization of communication drivers.

## ApexR Configuration – Report

The Report screen displays the complete Customer Report for viewing and exporting. This report can contain the sections as shown in the image below.

**Report Sections:**

- **General**
- **Sample**
- **Flow**
- **Photo Diode**
- **Laser**
- **DIP Switch**
- **Protocol**
- **Other Protocol**
- **Ethernet**
- **Smart Bracket**
- **Channel Information**



1 of 2

LIGHTHOUSE WORLDWIDE SOLUTIONS

Name: LWS Apex Remote Customer Report Page: 1 of 2
Created On: 8/4/2021 Status: Completed

**General Information**

| | | | |
|---|---|---|---|
| Model | ApexR | Cal Date | 8/4/2021 |
| Serial # | 2108100005 | Calibration Due | 8/4/2022 |
| MAIN Firmware | 1.06.004 | # of Records | 138 |
| Counter Firmware | 1.01.001 | EPROM Parameter | 2 |
| Display Firmware | 1.00.004 | | |
| Ethernet Firmware | 1.02.002 | | |

**Sample Information**

| | | | |
|---|---|---|---|
| Sample Time | 60 | Hold Time | 0 |
| Delay Time | 0 | Cycles | 0 |

**Flow Information**

| | | | |
|---|---|---|---|
| Flow Rate | 1.00 | Flow Health | Bad |
| Flow Unit | CFM | | |

**Photo Diode Information**

| | | | |
|---|---|---|---|
| Photo Diode Health | Good | PA Power Supply | Good |

**Laser Information**

| | | | |
|---|---|---|---|
| Laser Current | Good | Laser Power | Good |
| Background | Good | Laser Power Supply | Good |

**Dip Switch Information**

| | | | |
|---|---|---|---|
| Dip Switch Present | No | Modbus Serial | ASCII |
| Modbus Slave Address | 0 | | |

**Protocol Information**

| | |
|---|---|
| Protocol Type | TCP |

**Other Protocol Information**

| | | | |
|---|---|---|---|
| Fast Update | No | SW Control RGB | No |
| Smart Bracket Mode | No | | |

**Ethernet Information**

| | | | |
|---|---|---|---|
| MAC Address | 68:27:19:E1:8E:94 | IP Address | 10.10.3.185 |
| Ethernet Enabled | Yes | Subnet Address | 255.255.0.0 |
| DHCP Enabled | No | Gateway Address | 0.0.0.0 |

**Smart Bracket Information**

| | | | |
|---|---|---|---|
| Smart Bracket Mode | Disabled | Bracket MAC Id | FFFFFFFF |
| Bracket Location | FFFFFFFF | | |
| Current IP Address | 0.0.0.0 | New IP Address | 192.168.1.100 |
| Current Subnet Address | 0.0.0.0 | New Subnet Address | 255.255.0.0 |
| Current Gateway Address | 0.0.0.0 | New Gateway Address | 192.168.1.1 |
| Current Modbus Location Address | 0 | New Modbus Location Address | 1 |
| Program Next Bracket | No | | |

**Channel Information**

| Channel Size | Channel Enabled | Alarm Enabled | Alarm High |
|---|---|---|---|
| 0.5 | Yes | No | 1000 |
| 5.0 | Yes | No | 1000 |

The Header Bar at the top of the Report screen contains controls for the user:

Stop or execute a Refresh of the page to include changes made on other screens.

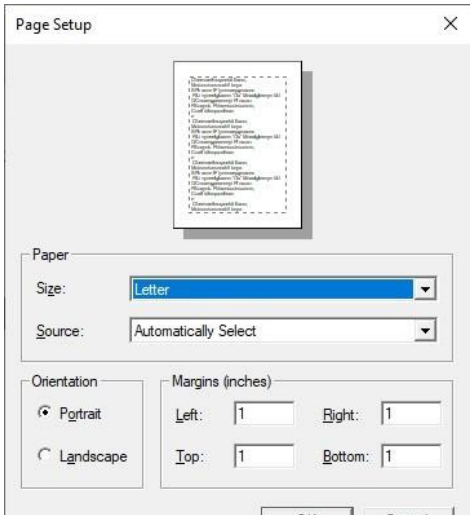
Page Navigation for navigating through multi-page reports

View Toggle switches the view between Print Preview and Interactive View

The Search function allows the user to search the Report for specific text.

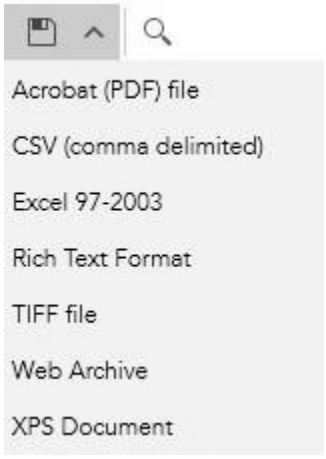
Navigate backwards and forwards through generated Reports


Page Setup displays the following setup options:

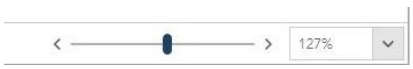



Print Report brings up a standard Print window for printing the Report

The Export dropdown allows the user to select the file type for saving the Report:




The bottom right side of the screen shows zoom settings to make reading the Report on-screen easier. The user can choose zoom percentages from the dropdown or manually enter a value.



Blank Page

# Chapter 11 Configuration Files

LMS XChange Administrators can use the LMS XChange Configuration Tab to view and edit ApexZ configurations as well as save, create, edit, delete, and/or send locally saved configuration files to connected ApexZ instruments. Users can also create Location lists to be used for data imported from other instruments.

This chapter covers how to create, edit, save, and load Configuration Files.

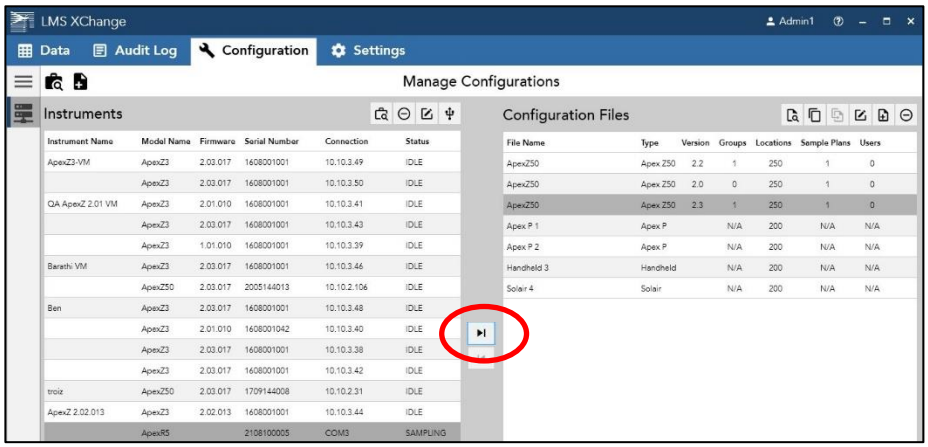
## Save an ApexZ Instrument's Configuration to a Local File

LMS XChange users can save the configuration of an ApexZ Instrument to a locally saved configuration file by selecting the Instrument and clicking the Save Configuration button located between the Instrument List and the List of Configuration Files on the Configuration Tab.

**Note:** To enable the Save Configuration button if it is greyed out, select an ApexZ Instrument on the Configuration Tab's Instrument List.

**Note:** Configuration can only be saved from Instruments that are currently IDLE.

**Note:** Configuration cannot be saved from an Instrument that is currently SAMPLING.




**Save Instrument Configuration Button**

**Note:** LMS XChange can save configuration from ApexZ v1.0 instruments, but will automatically upgrade the saved configuration file to v2.0, and use v2.0 defaults for all new settings. The user can then manually upgrade the file from 2.0 to 2.4

By default, the configuration file's name will be the Instrument's name, or if the Instrument is not named, the file name will be its ApexZ model name.

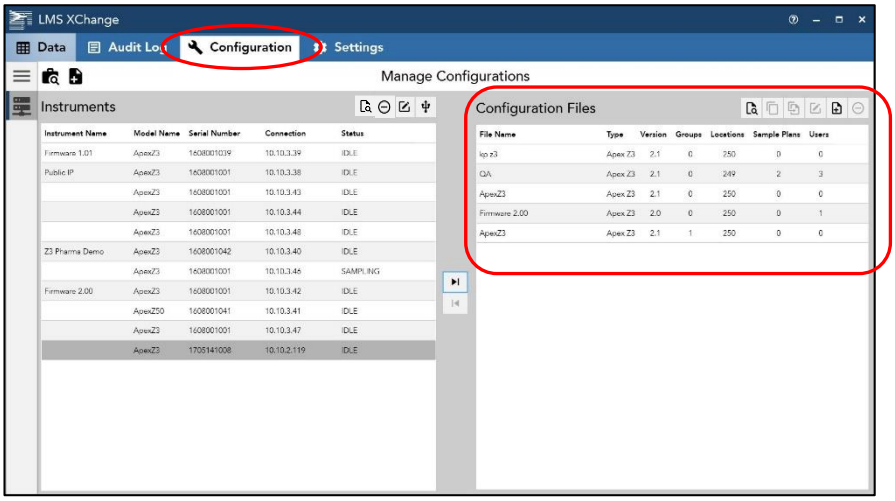
Once saved, the configuration file will be added to the list of Configuration files displayed on the right side of the Configuration, Manage Configurations screen. The name of the saved Configuration can be changed by clicking in the File Name column and typing in a new name.

## Configuration Files

Configuration Files

Besides editing the configuration currently on ApexZ instrument's, users can use LMS XChange to create and edit configuration files, to load a specific configuration file onto one or more ApexZ instruments, and to create Location lists for other instruments' data imports.

Locally saved Configuration Files are listed on the right side of the Configuration tab, in the list of Configuration Files. All files listed can have their File Names changed to whatever the user desires.




**Configuration Tab – Configuration File List**

Buttons above the list of configuration files allow the user to find, copy, upgrade, edit, create, and delete saved configuration files.

**Configuration Tab, Configuration File options**

Details of each button's function are below.

## Find Configuration File

Locate a configuration file that is currently saved on an accessible local or network folder.

## Copy Configuration File

Copy the selected configuration file to an external location (only applicable to ApexZ Configuration files). This will save the ApexZ configuration as an LSCx file type.

## Upgrade Configuration File

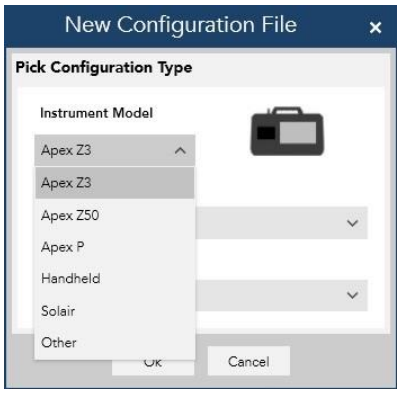
Create a copy of the configuration file and upgrade it to the next configuration file version (only applicable to pre-v2.4 ApexZ files). This will leave the original configuration file in place, creating another file with the upgraded version features.

## Edit Configuration File

Edit the selected configuration file. This option brings up the Configuration screens available for the unit type selected. ApexZ units will have all screens available (see the Instrument Configuration chapter for details), while other units will only display the Locations screen.
The Location lists from non-ApexZ configuration files

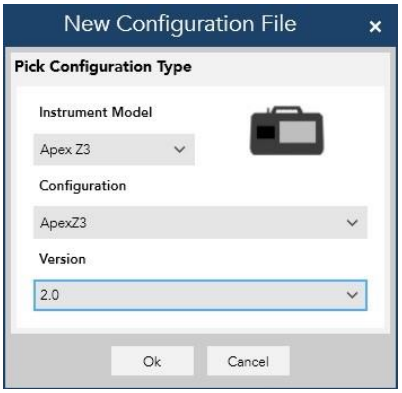
## Create New Configuration File

Create a new Configuration file. This will bring up the New Configuration File window, where the user can select which Configuration Type the new file will be.

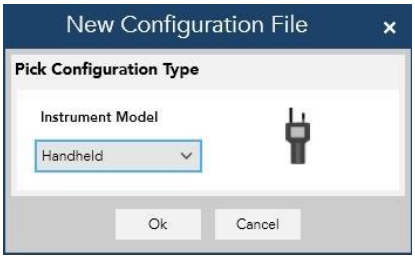



**Note:** Newly created configuration files will contain default values for all selections.

Selecting either ApexZ option from the list of Instrument Models will allow the user to generate a new Configuration File for an ApexZ unit, and they will be able to select version types from 2.0 through 2.4 (this allows for creation of configuration files for units with older firmware).




Selecting any Instrument Model other than ApexZ will not provide any other selections. These Configuration Files will only contain a Locations screen and are used when importing data from unit types other than ApexZ.




Since units other than the ApexZ do not support long Location names, these configuration files allow assigning long Location names in place of the short Location names when the data is imported. This will add a third option to the Synchronization Issue window that pops up after downloading data for the first time from non-ApexZ units.

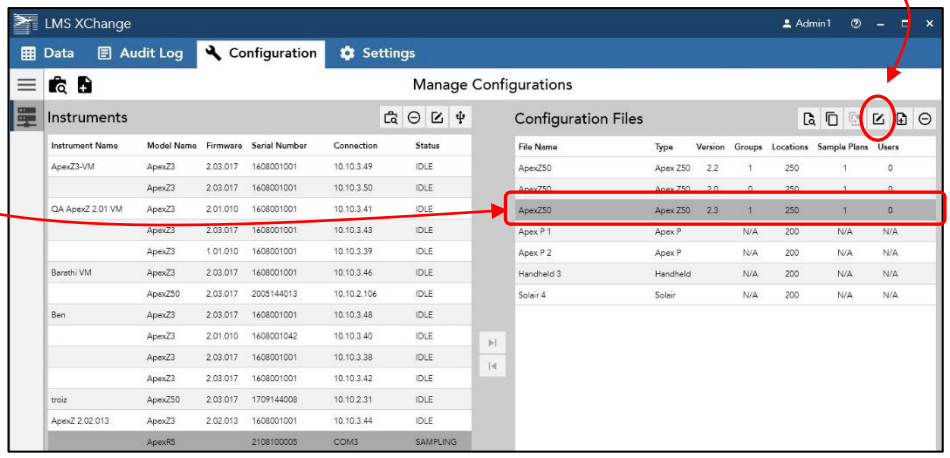
## Delete Configuration File

Deletes the selected configuration file.

## Editing Saved Configuration Files

To edit a saved Configuration File, select the Configuration file from the list of Configuration files on the right side of the Configuration tab.

Next, click on the Edit Configuration button.

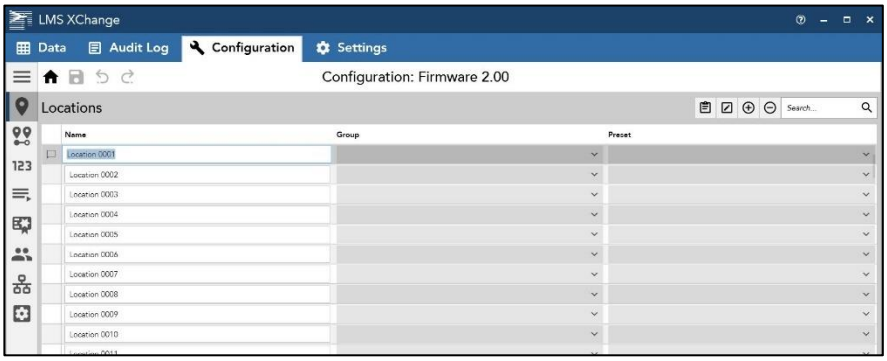



**Select a File and Click the Edit button to Open a Configuration File**

**Note:** When editing a configuration file, the white toolbar displays the title "Configuration:" and the name of the configuration File.

When editing an instrument's configuration, the white title bar displays "Instrument:" and the Name of the instrument or its model name, and its IP address.

LMS XChange opens the configuration file, displaying the first screen available for that configuration file.

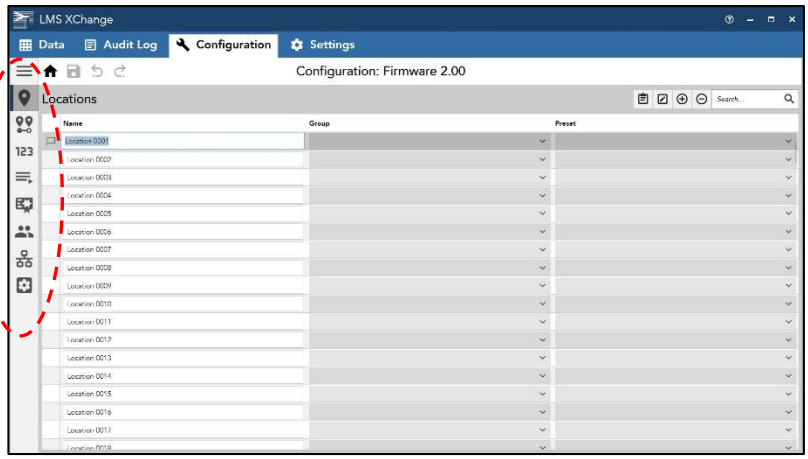



**Opened ApexZ Configuration File**

**Note:** The example on the right uses an ApexZ configuration file.

Configuration files for other instruments, such as Handheld, Solair, and ApexP, will contain only Locations and only the Location button will be on the left toolbar.

The toolbars and buttons available to edit an ApexZ Configuration File in LMS XChange are the same as the toolbars and buttons available in LMS XChange to edit an ApexZ instrument's configuration. Please see the sections on editing an instrument's Configuration for details.




**Toolbar available to Edit a Configuration File**

**Note:** ApexZ configuration files can contain locations, groups, presets, sample plans, etc. Configuration files for other instruments, such as Handheld, Solair, and ApexP, only contain Locations and only the Location button will be on the left toolbar.

Clicking on the buttons on the left toolbar displays, and allows the user to add, edit, or delete the Configuration File's Locations, Groups, Presets, Sample Plans, Certifications, Users, Connectivity values, and Settings. Please see the sections in this manual on editing an instrument's configuration for details.

Editing a configuration file for ApexP, Handheld, or Solair will only display the Locations list. This list allows the user to enter names for each Location on the list that can subsequently be used to rename Location data for records imported from instruments. Since units other than the ApexZ do not support long Location names, these configuration files allow assigning long Location names in place of the short Location names when the data is imported. This will add a third option to the Synchronization Issue window that pops up after downloading data for the first time from non-ApexZ units. Once the user has added to, or edited, the Configuration File, save the changes by clicking the "Save Changes" button.

## Save Changes

Like editing an Instrument's configuration, changes or additions the user makes are not saved, in this case to the file itself, unless the user clicks the "Save Changes" button on the white toolbar.

## Home Button

To leave the Configuration file screens and return to the main Configuration tab and its list of Instruments and Configuration files, click the Home button. If there are any unsaved changes, the user will be prompted if they want to discard the changes, or not.

# Chapter 12 Load Configuration Files

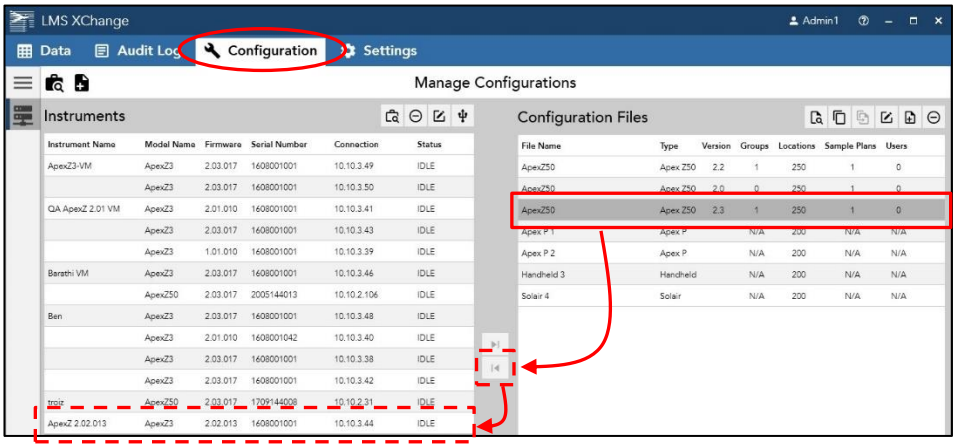
**Note:** ApexZ can only be loaded with ApexZ configuration files. Handheld with Handheld configuration files, Solair with Solair configuration files.

**Note:** The user cannot load a configuration file on to an instrument if the instrument is currently sampling.

**Note:** LMS XChange is not compatible with configuration files from ApexZ v1.0 instruments.

**Note:** If Users are Enabled on an ApexZ, to successfully load a configuration file onto the ApexZ the LMS XChange user will need to know and enter an Admin level username and password for the ApexZ.

Users can use LMS XChange to load configurations from a saved Configuration file onto a connected instrument.

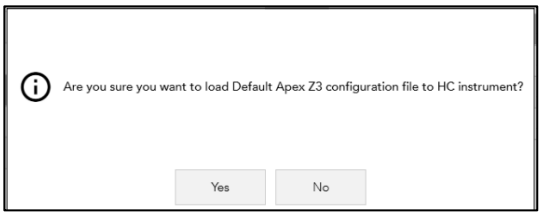



**Example, loading a Configuration onto an ApexZ**

To load a configuration file onto an instrument,

- Navigate to the Configuration tab in LMS XChange.
- Select the desired Configuration file from the list of files on the right side of the screen.
- Select the instrument from the list of connected instruments on the left side of the screen.
- Click the “Load Configuration” button  located between the two lists.
    - If the instrument is an ApexZ, and if Users are Enabled on the ApexZ, when prompted, enter an Admin level username and password for the Apex Z.

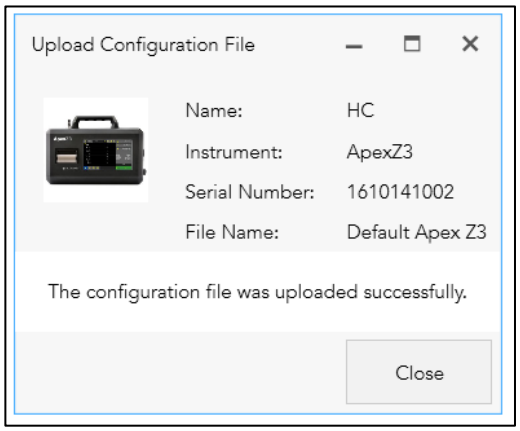
- A message like the following will appear if the instrument is an ApexZ, asking the user to confirm that they wish load this configuration file onto the selected instrument.




**Load Configuration, confirmation message**

- Click 'Yes' to continue and load the configuration, or 'No' to abort loading the configuration file.

If the user clicks 'Yes', and the load is successful, a message box like the following displays if the instrument is an ApexZ,




**Configuration successfully loaded**

Click 'Close' to close the message.

If the instrument is an ApexZ, the ApexZ will automatically restart. All instruments, once a configuration file has been set to them, will go forward running the newly loaded configuration.

# Appendix A - LMS XChange Navigation and Toolbar Buttons

The following tables describe the commands available on the Data, Configuration, Audit Log, and Settings Dashboard Tab toolbars, Navigation toolbars, and Feature Toolbars.

**Data Tab**

| Button | Command | Description |
|---|---|---|
|  | Display Data Table | Displays data imported and saved into the LMS XChange database. The data displayed can be filtered by date range, instrument name, location and other parameters. |
|  | Graphs | Allows the User to Graph particle count and environmentals information from imported data. |
|  | Compliance Reports | View imported Compliance reports and create and view Compliance reports using imported data. |
|  | Import Data | Import data from a connected Apex, Solair, Handheld or connected environmental instrument, or from a .lsdx or .lsd data file. |

**Audit Log Tab (Top Level)**

| Button | Command | Description |
|---|---|---|
|  | Log Table | Displays Audit Log records previously imported and saved into LMS XChange database. Users can use Audit Log filters (on right side of screen) to select/filter the data displayed by date range, instrument name, or configuration file. |
|  | Export Data Table | Opens a “Save As” dialog box where the user can choose the save the displayed Audit Log table as a .xlsx, .csv, or .pdf file type to a location they choose. |

**Configuration Tab (Top Level)**

| Button | Command | Description |
|---|---|---|
|  | Find Instrument | Locate an instrument. Once found and connected, the Instrument will be added to the Instrument List. |
|  | Create New Configuration File | Create a new Configuration File. |
|  | Remove Instrument | Remove the selected instrument from the list. |
|  | Edit Instrument Configuration -Or- Edit Configuration File | Edit the selected instrument's configuration, or the selected saved configuration. This option allows users to edit locations, groups, presets, routines, certifications, and settings. |
|  | Scan USB | LMS XChange will scan the local USB Port(s) for instruments connected to the computer via USB. |
|  | Find Configuration File | Locate a configuration file. |
|  | Copy Configuration File | Copy a configuration file to an external location. |
|  | Upgrade Configuration File | Create a copy of the selected configuration file and upgrade it to the next configuration version. |
|  | Create New Configuration File | Create a new ApexZ3 or ApexZ50 configuration file that will be saved locally. The initial file will contain all the ApexZ3 or ApexZ50 default values, as appropriate. |
|  | Delete Configuration File | Delete the selected configuration file from the list of locally saved configuration files. |

| | | |
|---|---|---|
|  | Load Configuration | Select a configuration file from the list of configuration files on the right side of the screen. From the left side of the screen, select the instrument(s) on which you want to load this configuration file, then click the < button. The selected configuration will be loaded onto the selected instruments.<br>Note, the username you log into LMS XChange with must match the username of an Admin level user on the ApexZ instrument you are attempting to load the selected configuration file onto. |
|  | Save Configuration | Select an ApexZ from the list of connected instruments on the left side of the screen and click the > button to save the selected ApexZ instrument's configuration to a locally saved configuration file. |

**Configuration Tab (Edit Configuration Level)**

| Button | Command | Description |
|---|---|---|
|  | Home | Click to close the current configuration and return to the Dashboard Configuration Tab.<br><br>If there are unsaved changes, the user will be prompted to save or discard their changes first before LMS XChange returns to the Dashboard Configuration Tab. |
|  | Save Changes | Save the unsaved changes to the current instrument or configuration file. |
|  | Undo | Undo the last change made to the current configuration file or instrument. |

| | | |
|---|---|---|
|  | Re do | Re-add the last un-done change to the current configuration file or instrument. |
| Instrument: XXXXX | Name of the current Instrument | If the user opened configuration of an instrument, the title “Instrument:” followed by the Instrument’s name or Mode Name, and IP address is displayed on the white tool bar on the Configuration Tab. |
| Configuration: XXXXX | Name of the current configuration file | If the user opened a configuration file, the title “Configuration:” followed by the file’s name is displayed on the white tool bar on the Configuration Tab. |
|  | Locations | Add, Modify, or Delete the Locations saved in the current configuration. |
|  | Groups | Add, Modify, or Delete the Groups saved in the current configuration. |
|  | Presets | Add, Modify, or Delete the Presets saved in the current configuration. |
|  | Sample Plans | Add, Modify, or Delete the Sample Plan saved in the current configuration. |

| | | |
|---|---|---|
|  | Certifications | Add, Modify, or Delete the Certifications saved in the current configuration. |
|  | Users | User accounts saved on the instrument or in the configuration file.<br><br>(Note, the user accounts in the configuration file (or on the instrument) are potentially different than the user accounts created in LMS XChange itself, which are used to log in to LMS XChange) |
|  | Connectivity | Instrument's connectivity parameters, including Ethernet, Wi-Fi, Active Directory, and CIFS settings. |
|  | Settings | Manage Application Settings for Language, Audit Trail import, Tag Updates, Preferred Temperature Unit and Data Table page size.<br>Manage Users and User Settings to enable, use Active Directory and set Auto Logout Time. |

**Settings Tab**

| Button | Command | Description |
|---|---|---|
|  | Applications Settings | Enable/Disable settings global to LMS XChange and all its users. Application settings include enabling/disabling importing instrument Audit Log records when Data is imported. |
|  | Report Customization | Update LMS XChange Report customization options. |
|  | User Accounts & Settings | Add, update password, or delete LMS XChange User Accounts as well as update settings that will apply to all users, such as if Users are enabled, and the LMS XChange Auto Logout duration. |
|  | Import Database | Import data from an LMS Express database. |

# End Of Appendix A

# Appendix B – Synchronization Issue Window

Pre-requisite: MODBUS instruments (SOLAIR 3100, HH3016, ApexP3/P5, REMOTE 5104P, ApexR5, ApexR3p) instruments should be connected to the network.

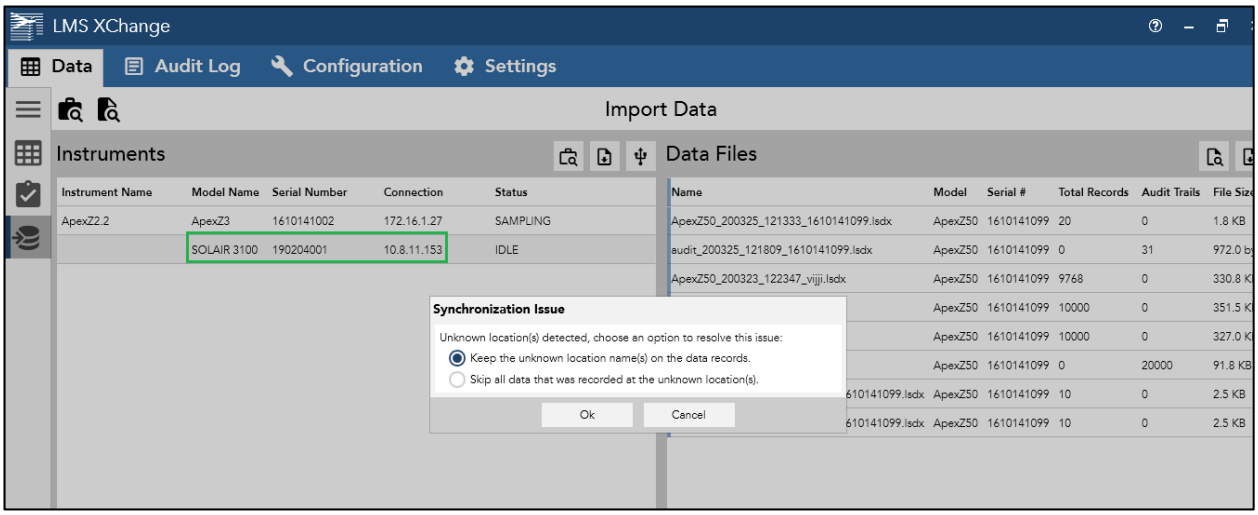
Note: The 'Synchronize Issue' window won't show up unless there is some sort of issue. In the case of Remotes they don't have location names so if you already have a location list in XChange it will use that list. With the numbers that aren't 1- 200 those aren't going to be in a normal location list because Solairs and handhelds only support numbers 1- 200.

## Scenario-1: With no location list saved

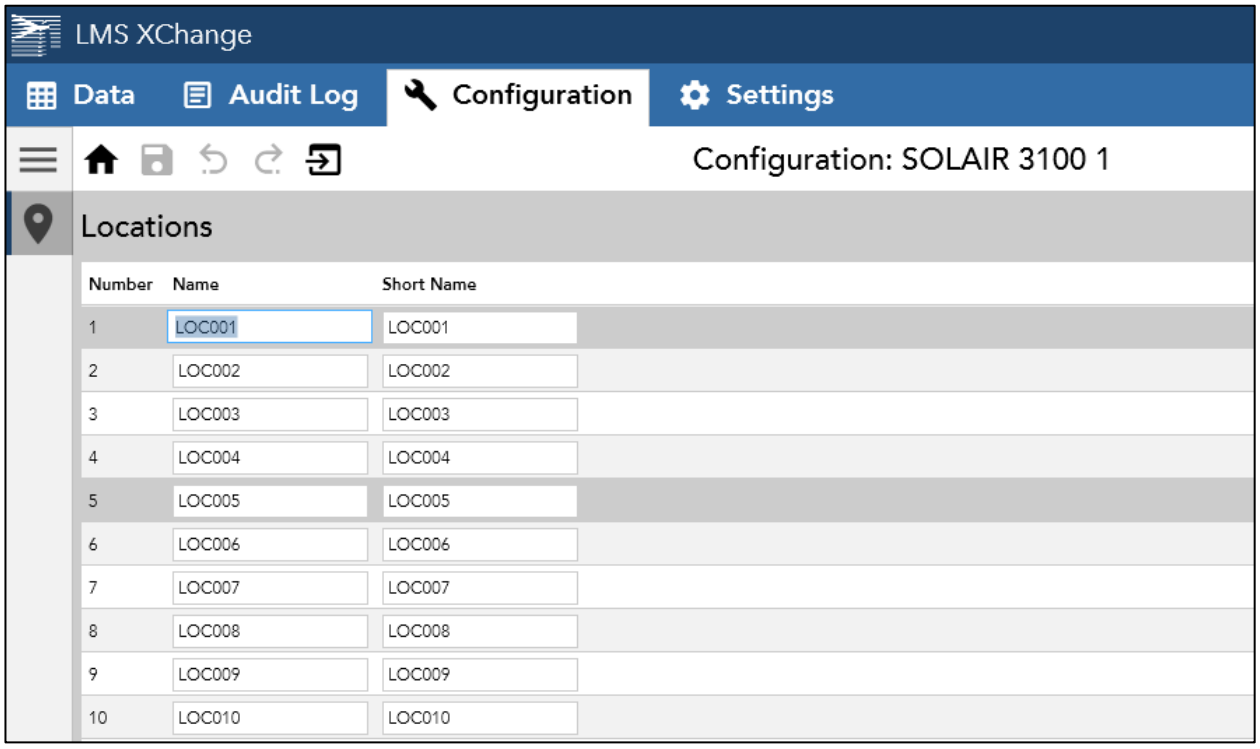
Synchronization Issue window with 2 options:

NOTE: 'Synchronization Issue' window pops-up with 2 options when user tries to import data from any MODBUS instrument, if the portable (SOLAIR, HANDHELD, ApexP, REMOTE3014P/5104P) location list has not been saved prior to data import on XChange.

Launch XChange with new database.
From Data screen, click 'Import Data' icon.
Find any portable instrument (by IP Address) [Example: Solair 3100 - 10.8.11.153]
Once the IP Address is detected, it displays the instrument details.
Click continue button, the Solair 3100 instrument will get added to the list.
Select the instrument and hit 'Import Data' icon.
"Verifying Locations" progress bar is displayed, followed by "Gathering Instrument Data" progress bar.
When it hits 100%, the 'Synchronization Issue' window is displayed with 2 options (Refer to the screenshot below)




Select option 1.
'Data Download' progress bar is displayed.
When it hits 100%, 'Data imported:' message is displayed.
Go to Configuration Tab and save the configuration.
"Locations imported from instrument serial number xxxxxxxxx
200 locations processed." Message is displayed.




Note: The Name = Short Name

Note: 'Synchronization Issue' window with 2 options will be displayed when user imports data from any REMOTE instruments (ApexR or ApexRxp) as well. But, the user cannot save the location list from REMOTE instruments, as location names are not supported in REMOTEs. XChange will display "Location names are not supported on this instrument" message when user tries to save the configuration.

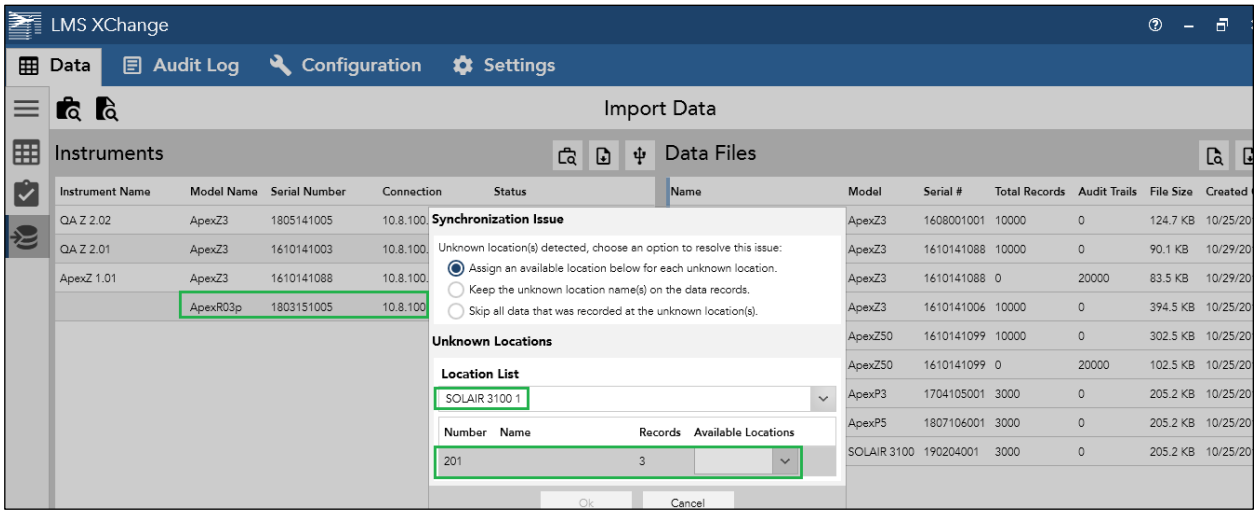
# Scenario-2: Remotes with 1 saved location list

**Synchronization Issue window with 3 options: Remotes**

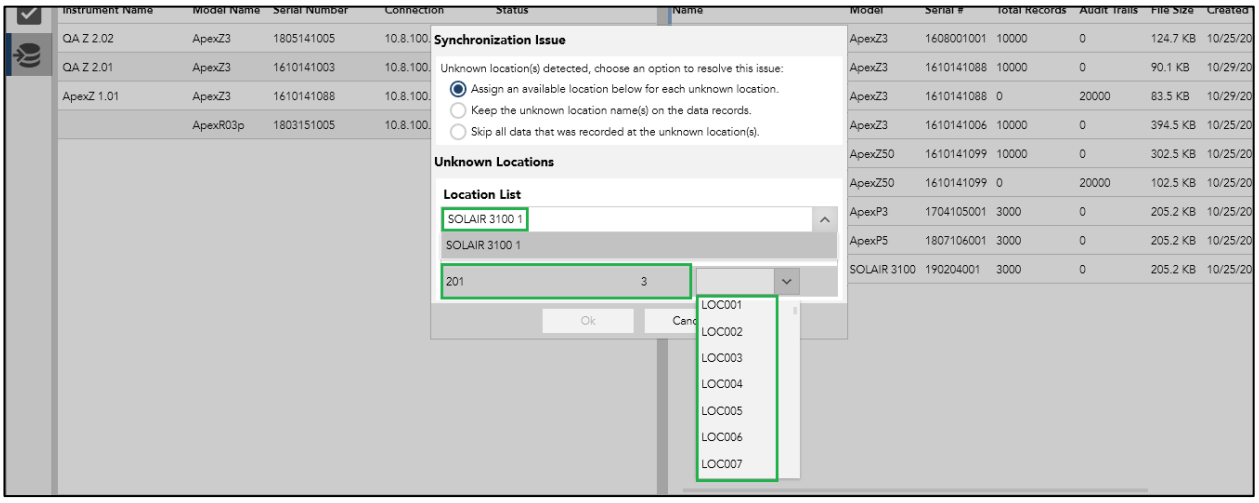
Note: 'Synchronization Issue' window pops-up with 3 options when user tries to import data from a REMOTE instrument which has records saved at locations that don't fall within the location range (1-200) [Example: Location # 200 and above] or an ApexR/Rxp using a Smart Bracket location # which doesn't fall within the location range (1 – 200) [Example: FFFFFFFF or ABCDEF12].

Pre-requisite: Connect any REMOTE instrument (Example: ApexR03p – 10.8.100.37) to LMS Express and collect few data points. Stop the instrument, Disconnect and remove the connections from Express.

Continue from scenario-2 (on the same database),
Find another instrument by IP Address (Example: ApexR03p – 10.8.100.37).
Perform data import. "Verifying Locations" progress bar is displayed, followed by "Gathering Instrument Data" progress bar. When it hits 100%, the 'Synchronization Issue' window is displayed with 3 options (Refer to the screenshot below)




Note: REMOTES have no location names saved on the instrument. So the 'Name' column will be BLANK.




**Location List** drop-down displays the SOLAIR 3100 and the **Available Locations** drop-down displays the locations from Solair's saved list. Select any location from the 'Available Locations' list. Click OK. Location gets assigned and data is imported onto XChange.

## Scenario-2: Portables with 1 saved location list

**Synchronization Issue window with 3 options: Portables**

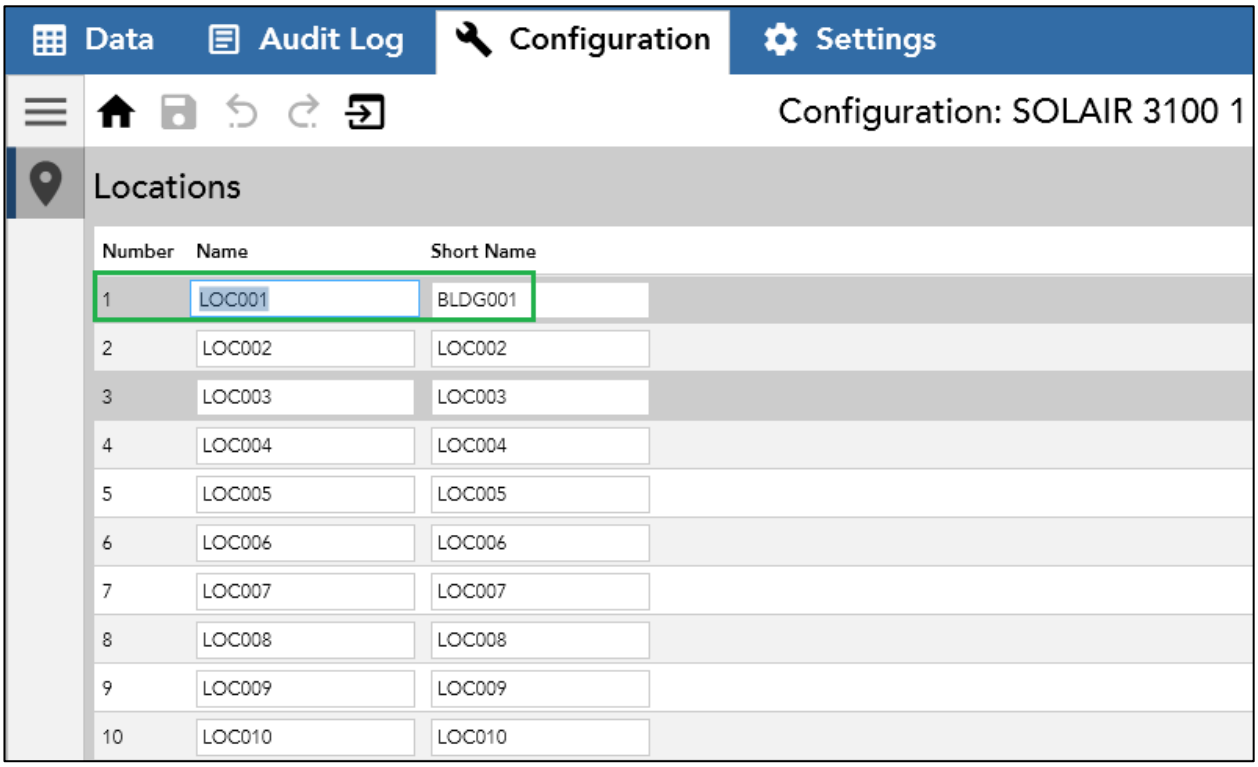
**Note:** Synchronization Issue' window pops-up with 3 options for Portable instrument when there is a location mismatch between the records saved in the Instrument versus the saved location list (Short Name) on XChange.

For Example: If the records were collected at LOCXX1 on the instrument and the saved location list has Short Name as LOC001, or if the records were collected at LOC001 but the saved location list has Short Name as 'BLDG001', then the 'Synchronization Issue' window will be displayed.

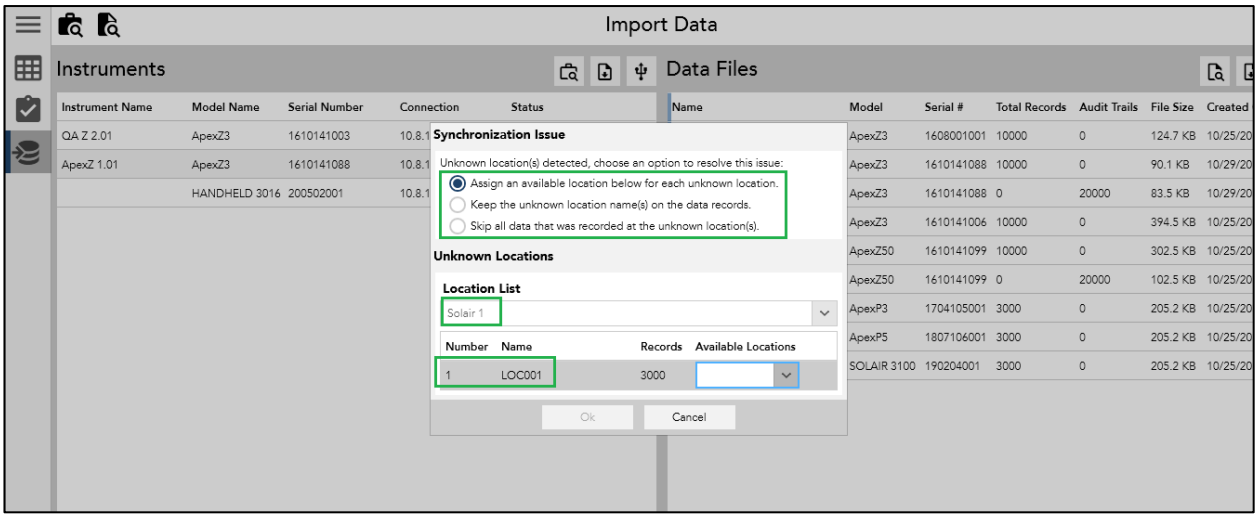
Pre-requisite: On the Portable instrument (Example: HANDHELD 3016), note the Location on which the records were saved [Example: LOC001].

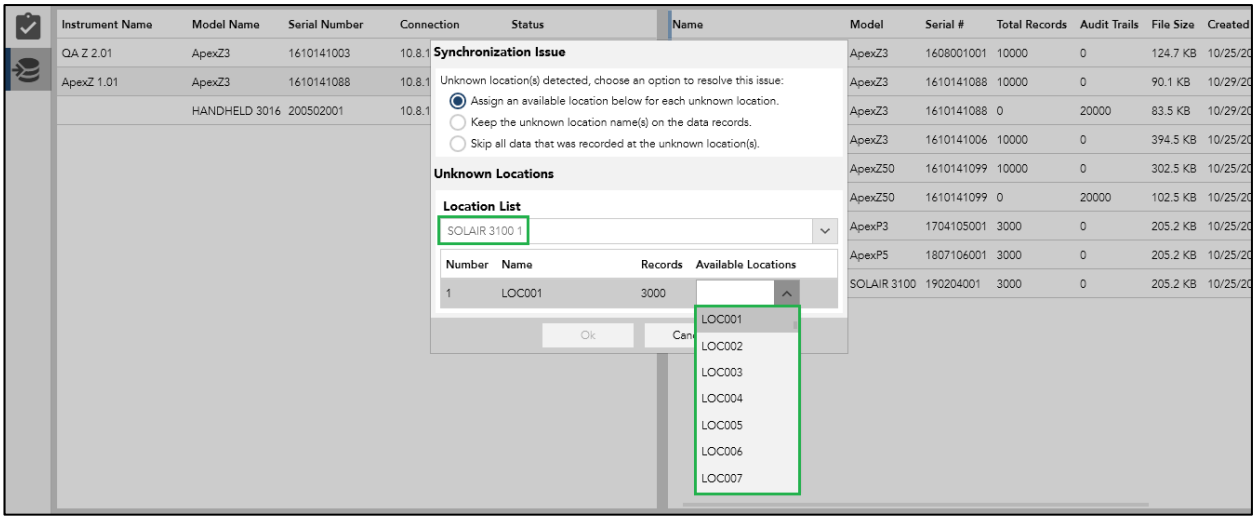
On XChange, edit the location list and change the 'Short Name' for Location 001 to 'BLDG001'.

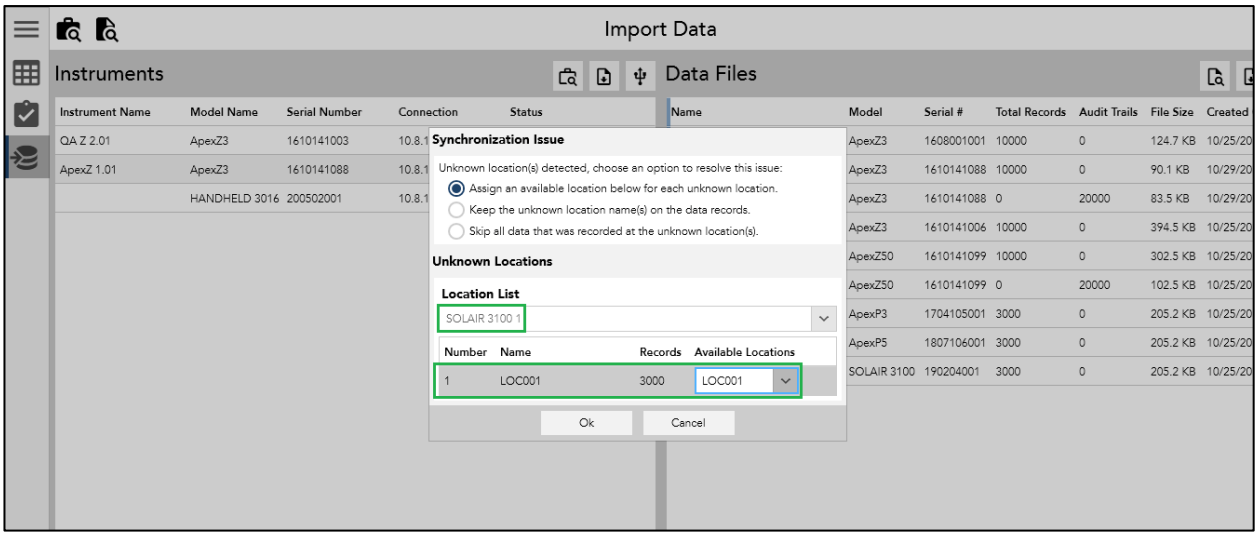
Save the configuration.




Continue from above,
Find another instrument by IP Address (Example: HANDHELD – 10.8.125.15).
Perform data import.
"Verifying Locations" progress bar is displayed, followed by "Gathering Instrument Data" progress bar.
When it hits 100%, the 'Synchronization Issue' window is displayed with 3 options (Refer to the screenshot below).




**Location List** drop-down displays the SOLAIR 3100 and the **Available Locations** drop-down displays the locations (Long Name) from Solair's saved list. Select any location from the 'Available Locations' list. Click OK. Location gets assigned and data is imported onto XChange. Go to Configuration Tab, save the HANDHELD configuration. "Locations imported from instrument serial number xxxxxxxxx 200 locations processed." Message is displayed.

# Scenario-3: Remotes with 2 saved location lists

**Synchronization Issue window with 3 options: Remotes**

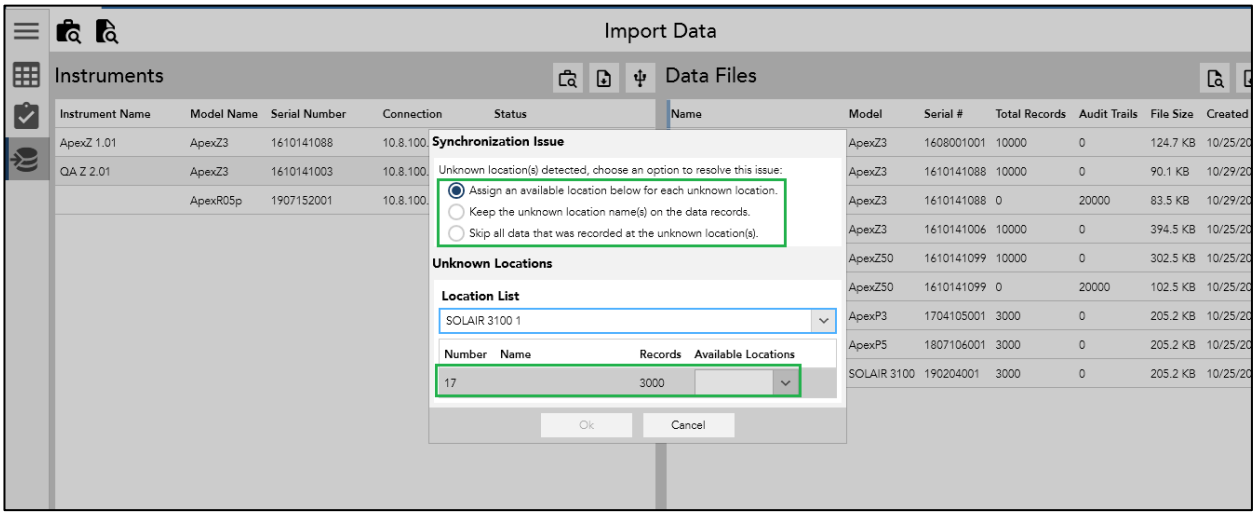
**Note:** When you start to have more than one location list then there is an issue again because XChange doesn't know which location list you want to work with for that REMOTE instrument, so it is going to ask you to tell it which list to use and how the numbers should line up with the names stored in XChange.

XChange is going to pop up that window when it first sees a new instrument so that you can tell it what list of locations are associated with that instrument

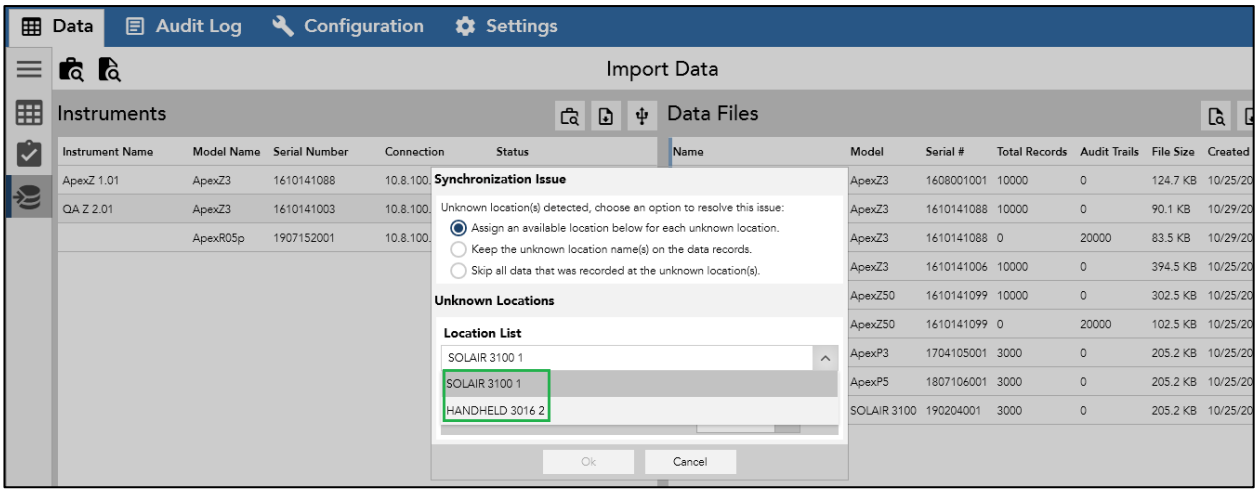
Note: 'Synchronization Issue' window pops-up with 3 options when user tries to import data from a REMOTE instrument if there is more than 1 location list saved on XChange.

Continue from scenario-2 (on the same database),
Find another instrument by IP Address (Example: ApexR05p – 10.8.100.211) [Note: It has records saved at Location 017 (LOC017)]

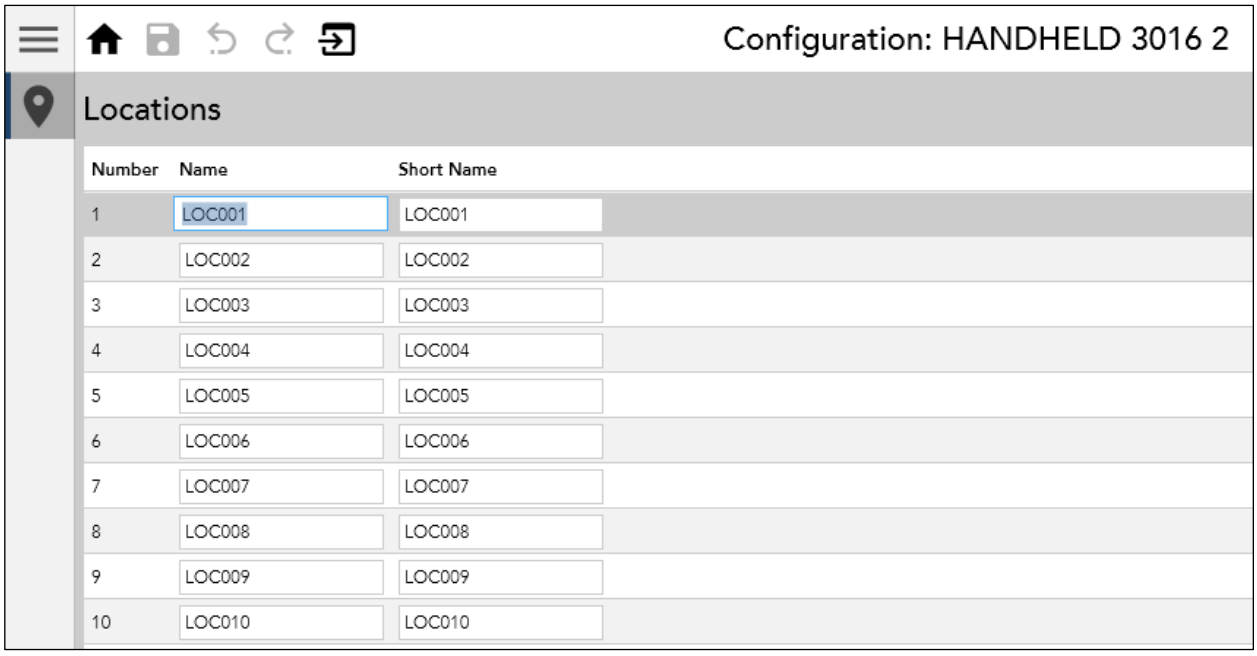
Perform data import.
"Verifying Locations" progress bar is displayed, followed by "Gathering Instrument Data" progress bar.
When it hits 100%, the 'Synchronization Issue' window is displayed with 3 options (Refer to the screenshot below)



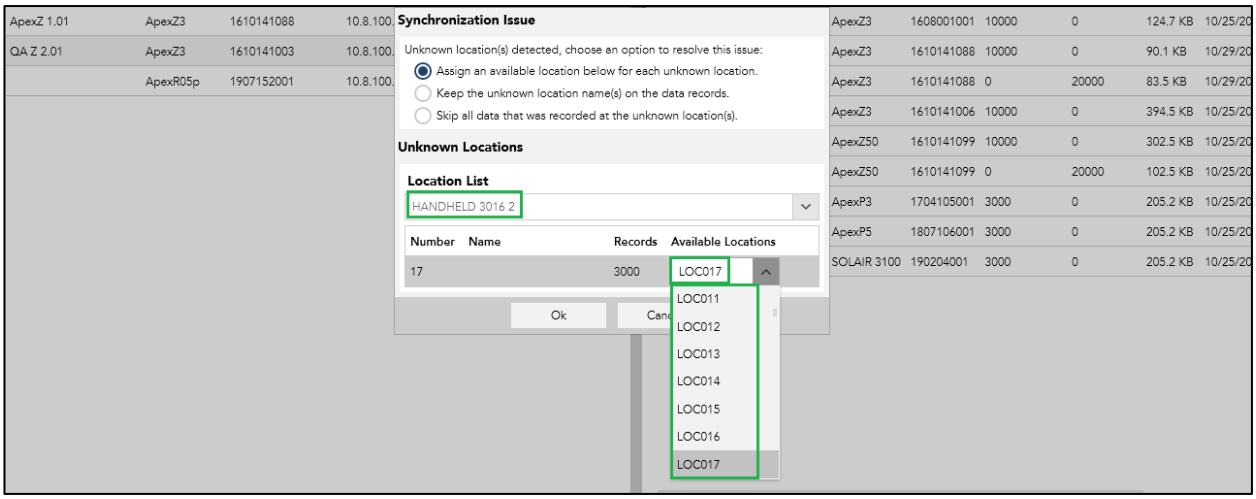

Location List drop-down displays both the SOLAIR 3100 and HANDHELD 3016 lists. (Refer to screenshot below)




Select either SOLAIR 3100 or HANDHELD 3016 list from the drop-down.




For example, select HANDHELD 3016. **Available Locations** drop-down displays the locations (Long Name) from HANDHELD saved list.




Select LOC017 from the **'Available Locations'** list. Click OK.

Location gets assigned and data is imported onto XChange.

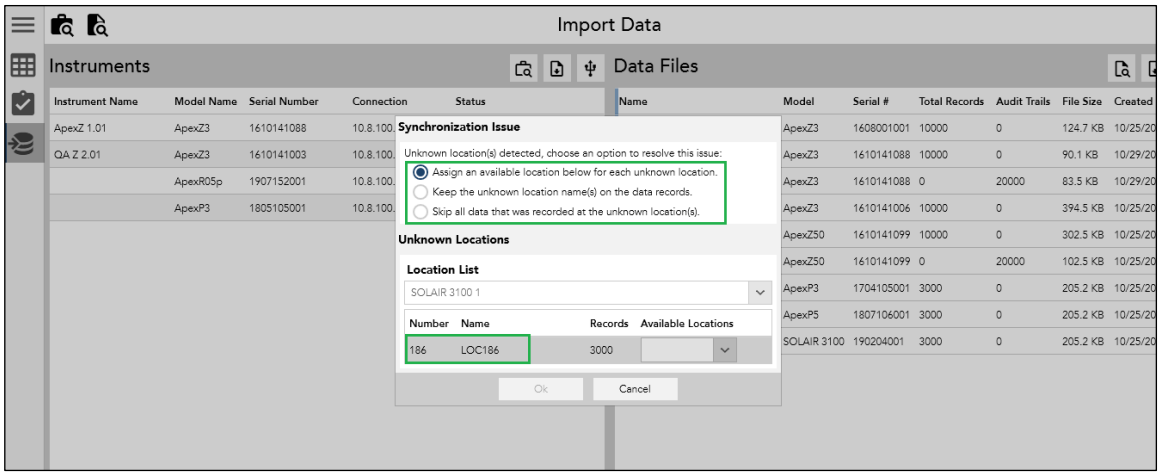
# Scenario-3: Portables with 2 saved location lists

**Synchronization Issue window with 3 options: Portables**

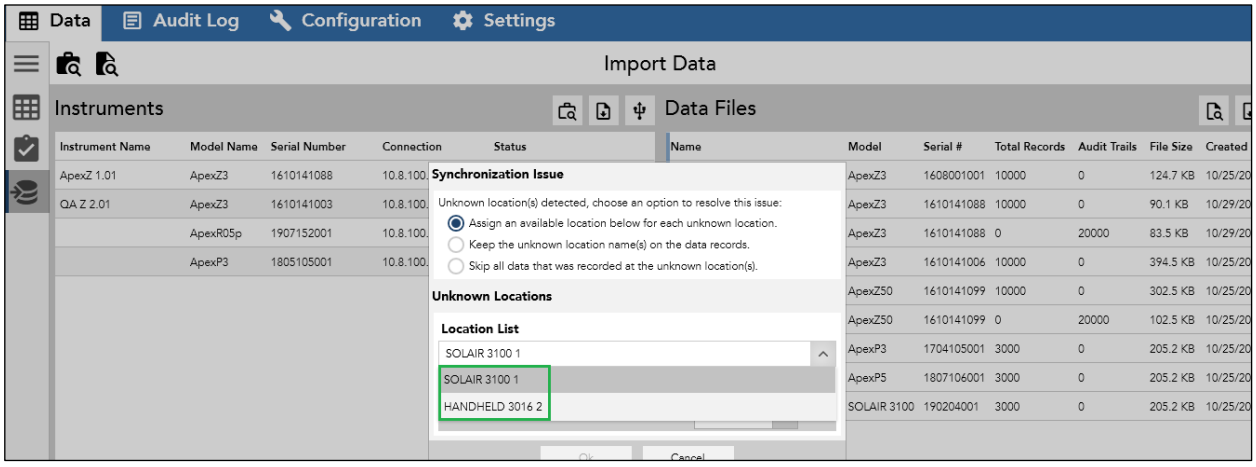
Note: 'Synchronization Issue' window pops-up with 3 options when user tries to import data from a Portable instrument if there is more than 1 location list saved on XChange.

Continue from scenario-2 (on the same database),
Find another instrument by IP Address (Example: ApexP3 (10.8.100.186) [Note: It has records saved at LOC186]

Perform data import.
"Verifying Locations" progress bar is displayed, followed by "Gathering Instrument Data" progress bar.
When it hits 100%, the 'Synchronization Issue' window is displayed with 3 options (Refer to the screenshot below)

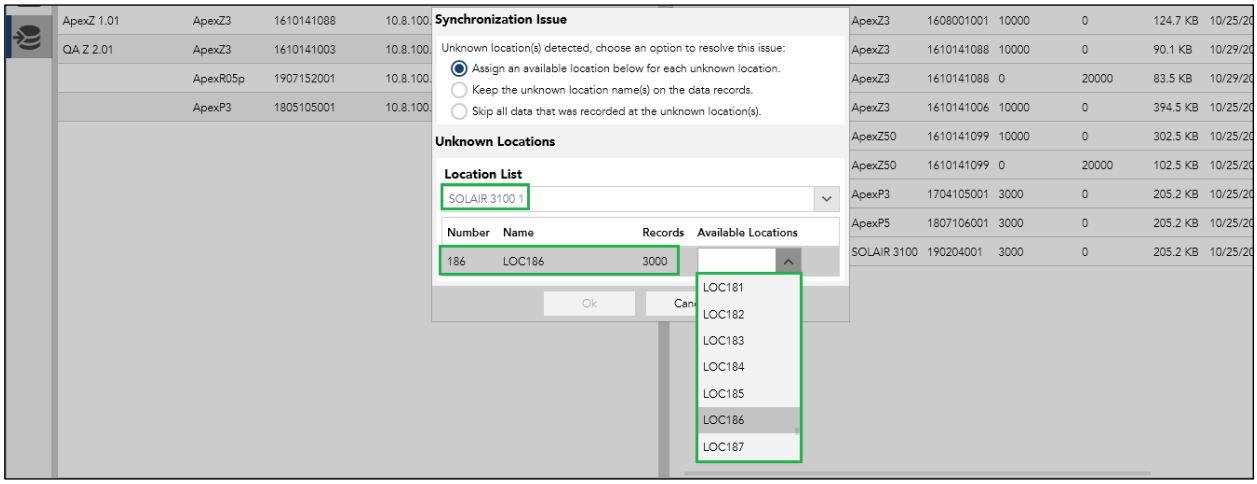



Location List drop-down displays both the SOLAIR 3100 and HANDHELD 3016 lists. (Refer to screenshot below)

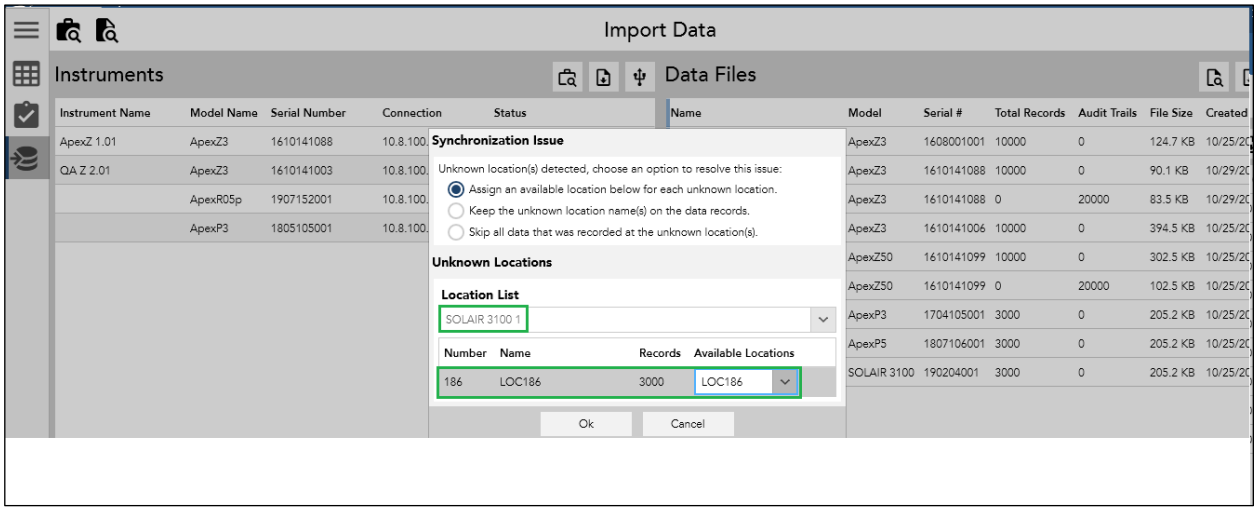



Select either SOLAIR 3100 or HANDHELD 3016 list from the drop-down.

For example, select SOLAIR 3100. **Available Locations** drop-down displays the locations (Long Name) from SOLAIR saved list.




Select LOC186 from the **'Available Locations'** list. Click OK.




Location gets assigned and data is imported onto XChange.

# End Of Appendix B

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